Total vegetation cover soil protection
Region:LGA Penrith_(C) NSW Date: October 2026

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.
Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region.
Total vegetation Cover:
The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

- 71-100% High cover - protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
- 51-70% Moderate cover - protected from wind erosion
- 31-50% Low cover - not protected
- 0-30% Very Low cover - not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available.
Time series monthly from January 2001 to current:
Erosion protection

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

Rainfall

- Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.
Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

Acknowledgment of data:

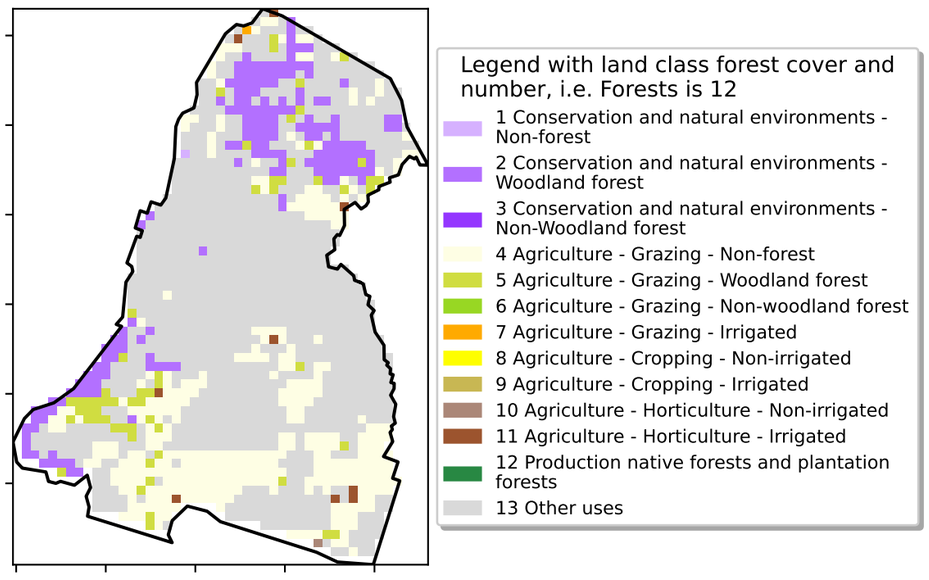
1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
4. MODIS Fractional cover algorithm:

   https://doi.org/10.4225/08/5848a3f19a7b3

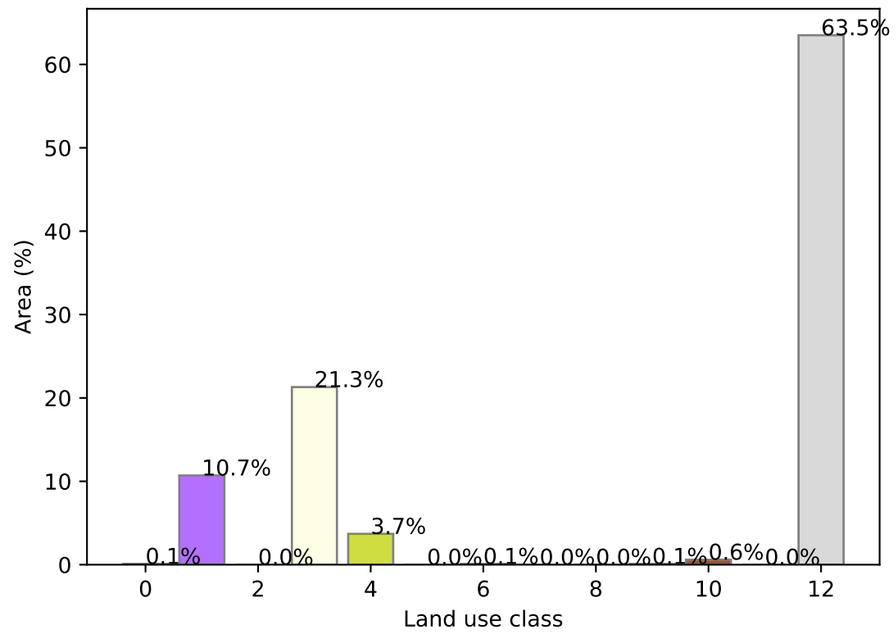
Vegetation Cover Oct 2026

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

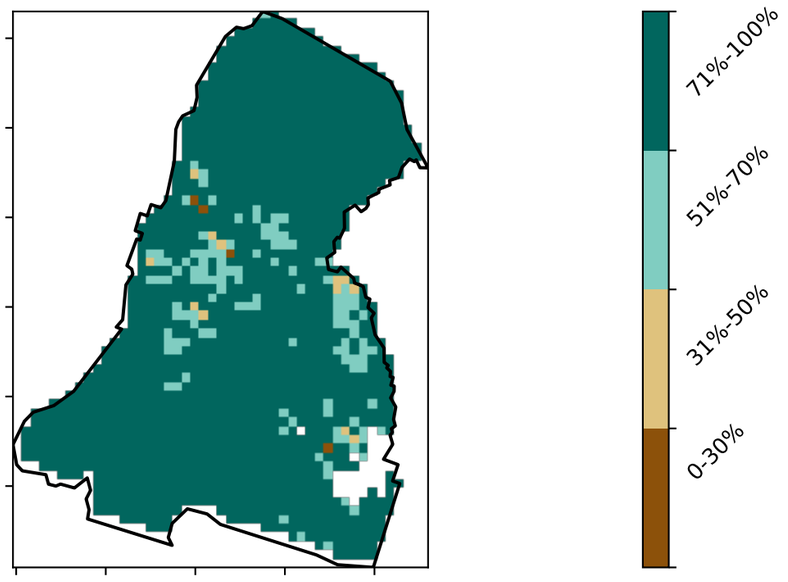
Land use and forest cover



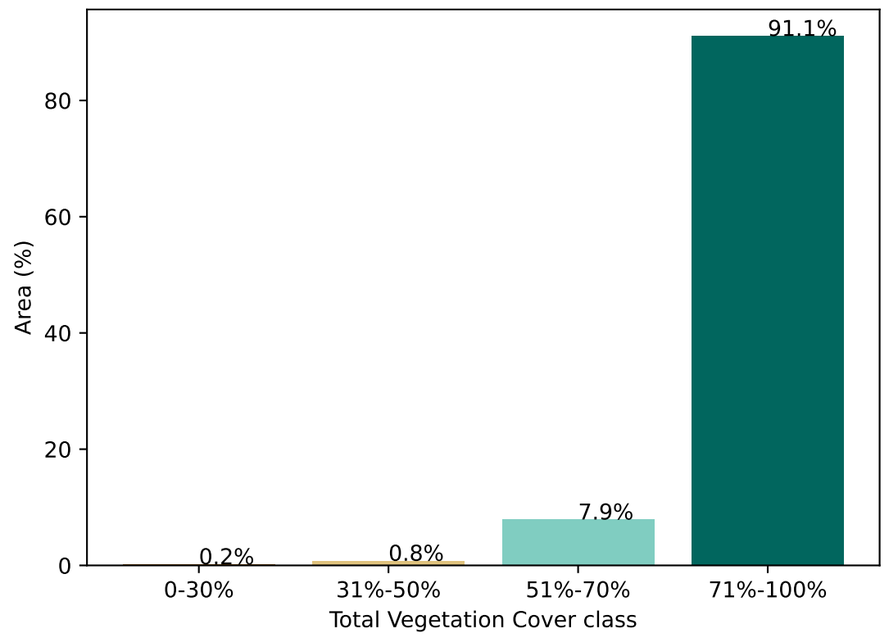
Proportion of each land class in area



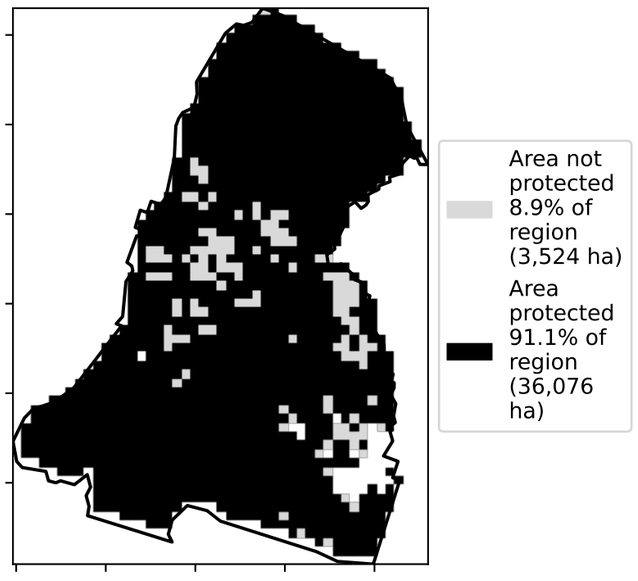
Total Vegetation Cover [%]



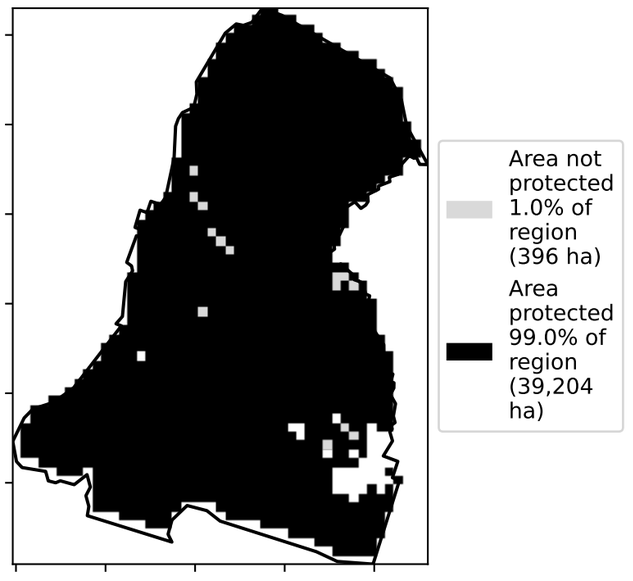
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

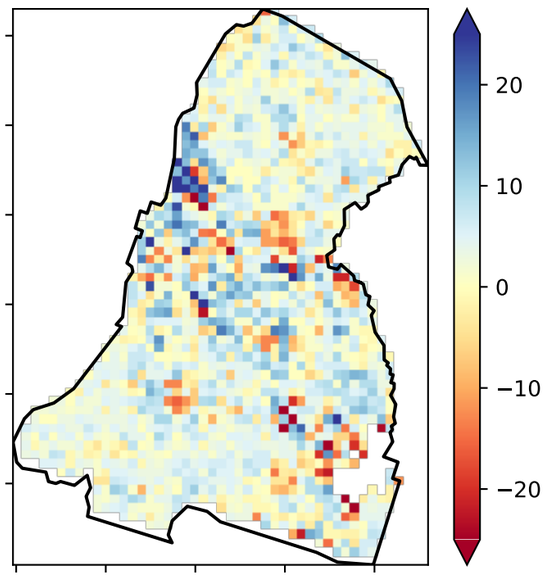


% Area protected from wind erosion (>50%)



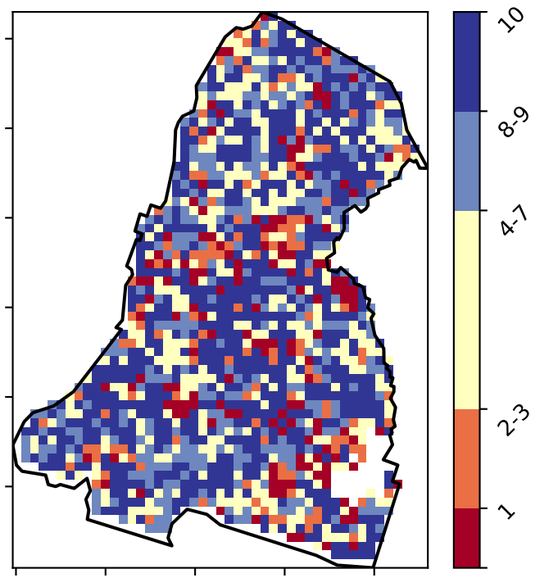
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

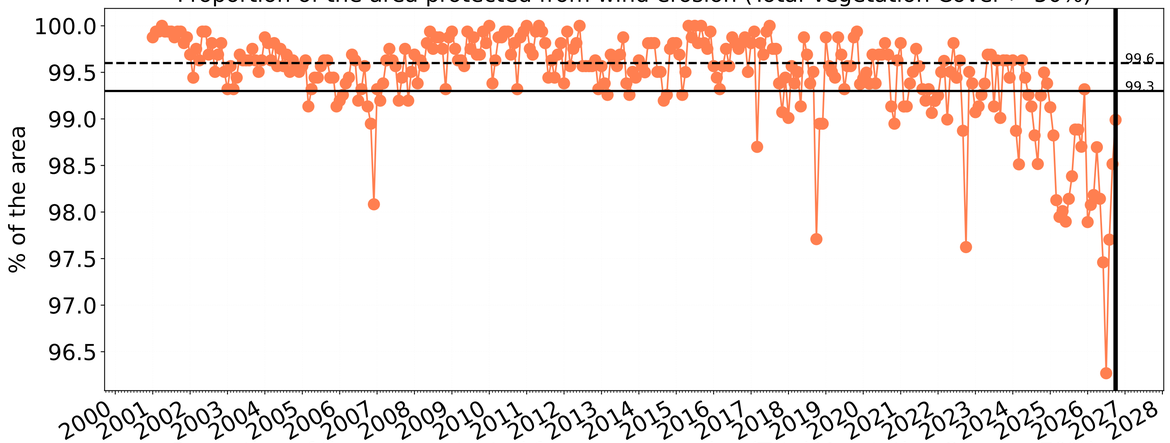


Total Vegetation Cover Decile [%]

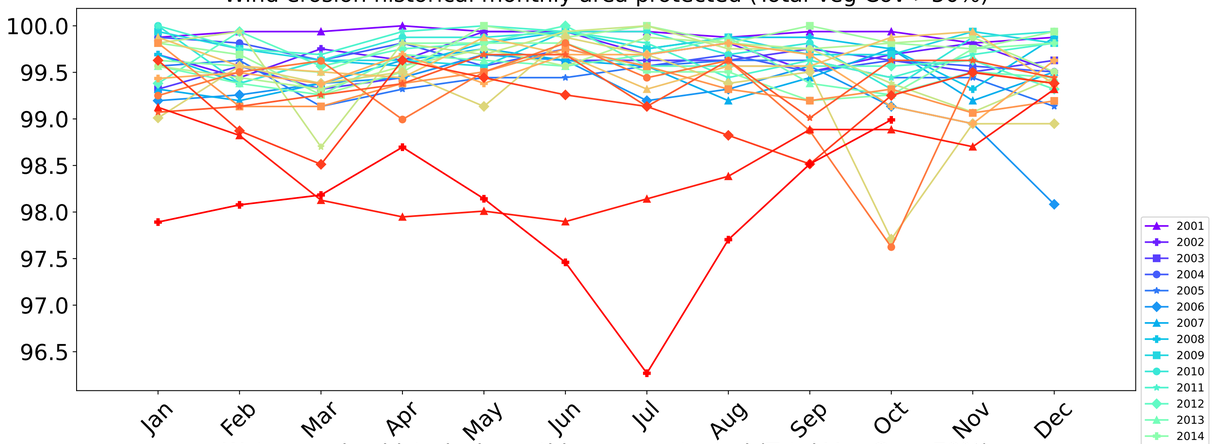
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



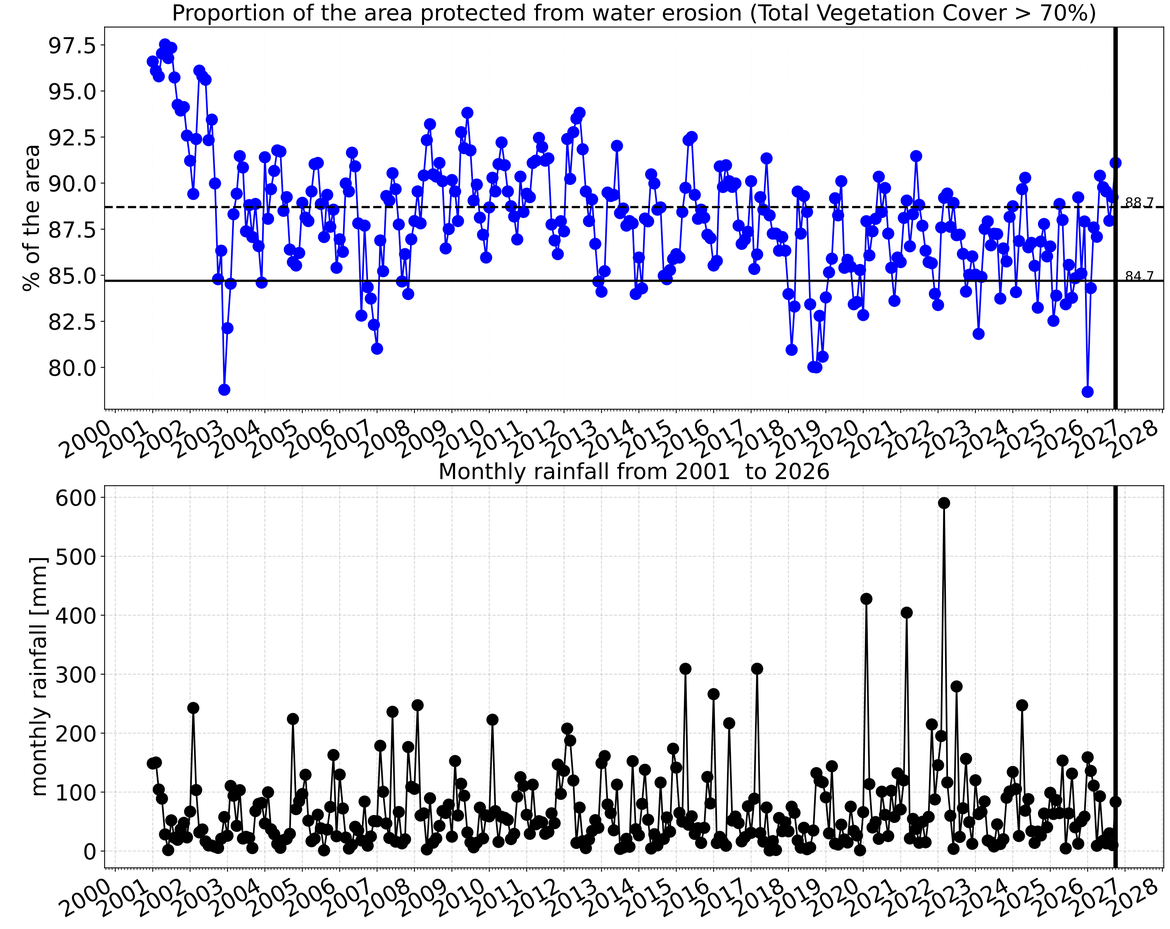
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



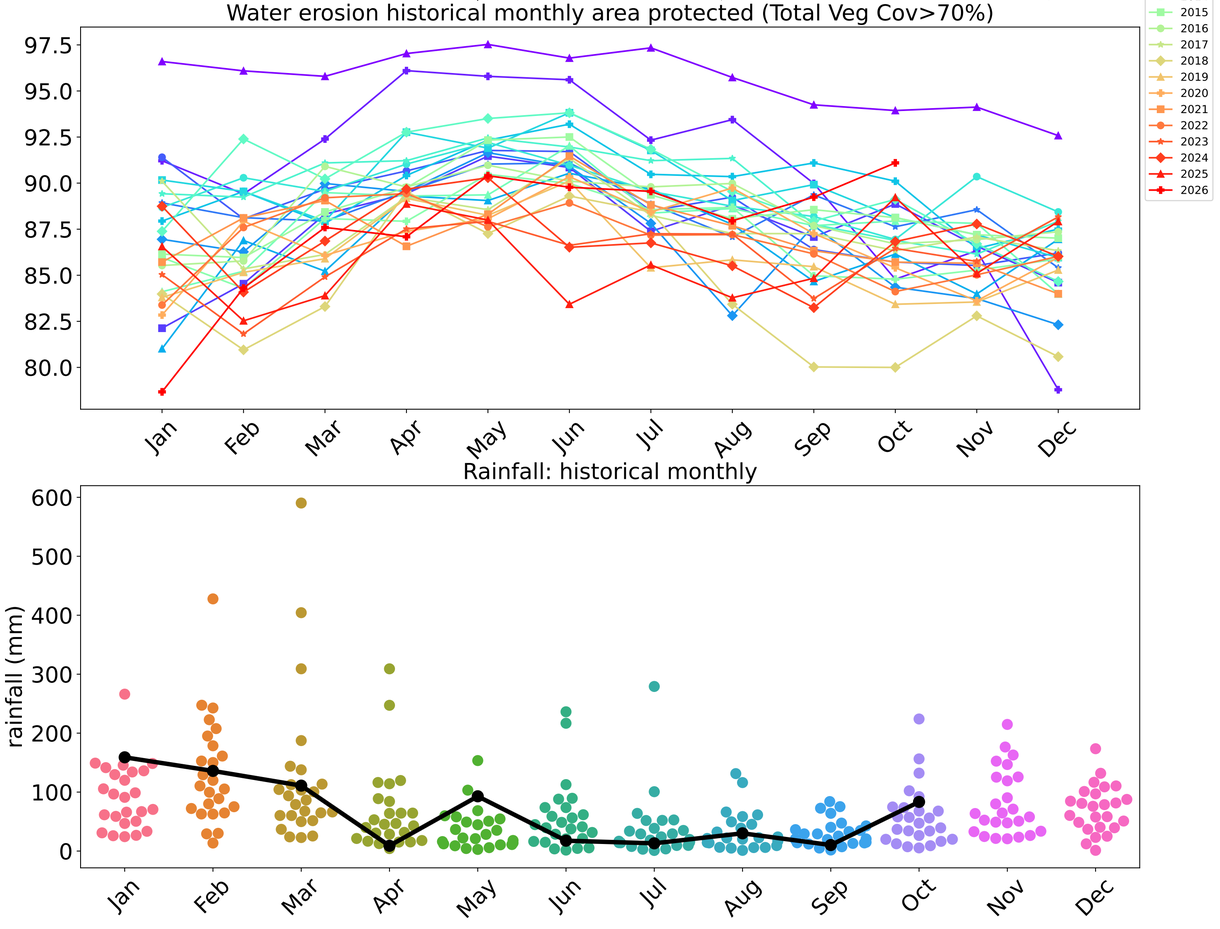
Wind erosion historical monthly area protected (Total Veg Cov >50%)

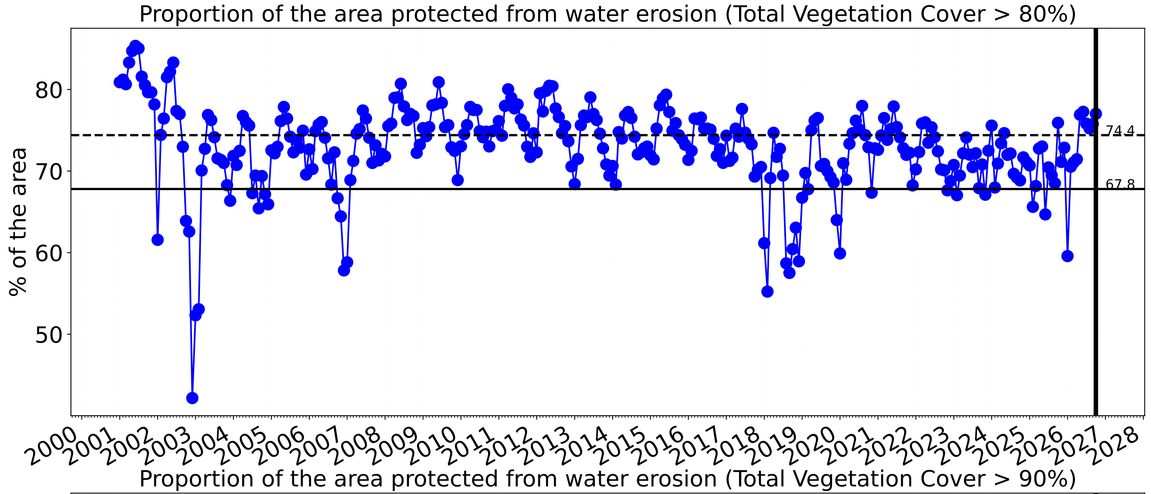


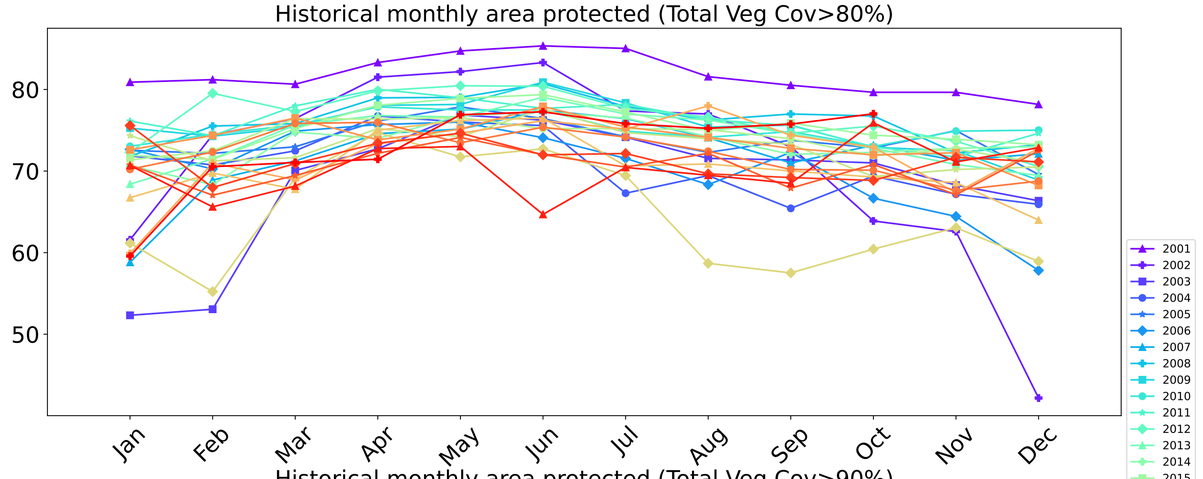
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

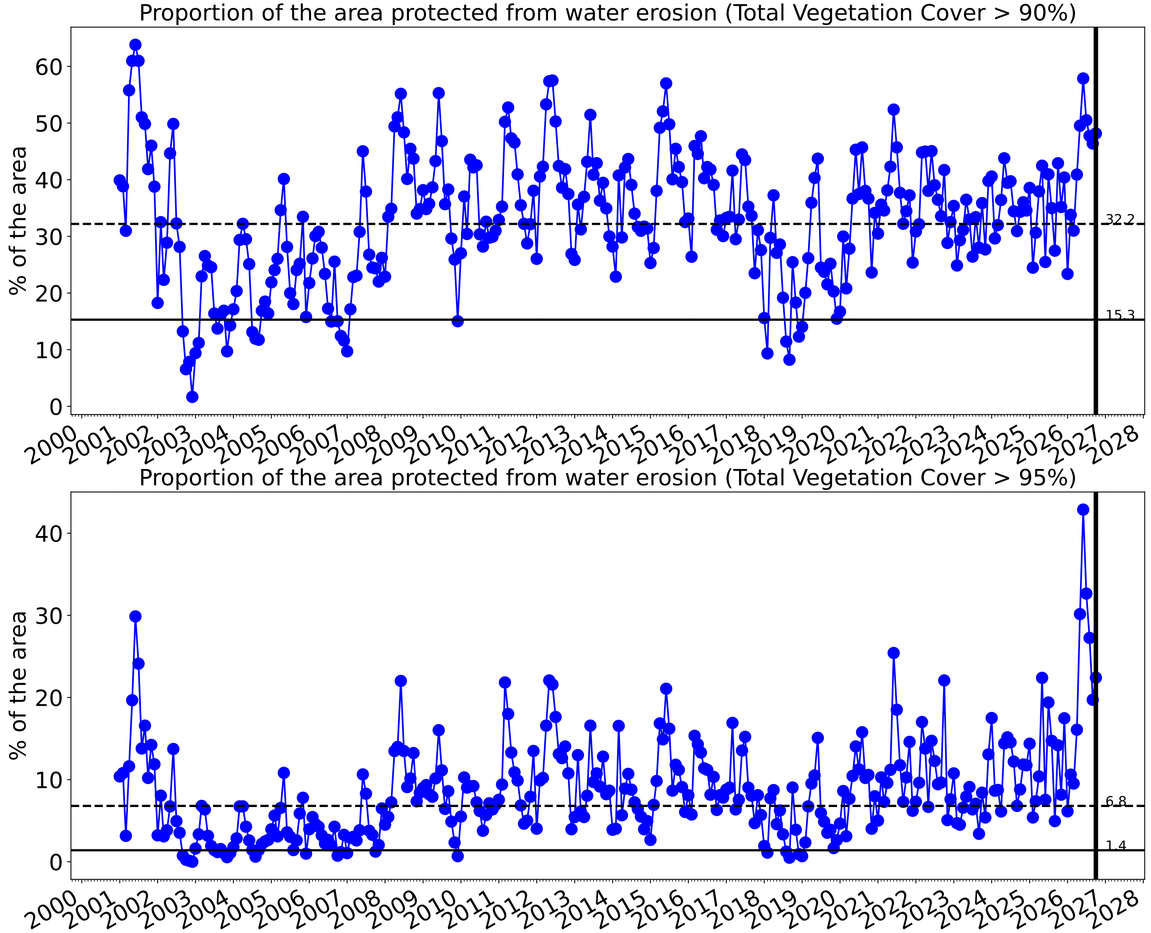


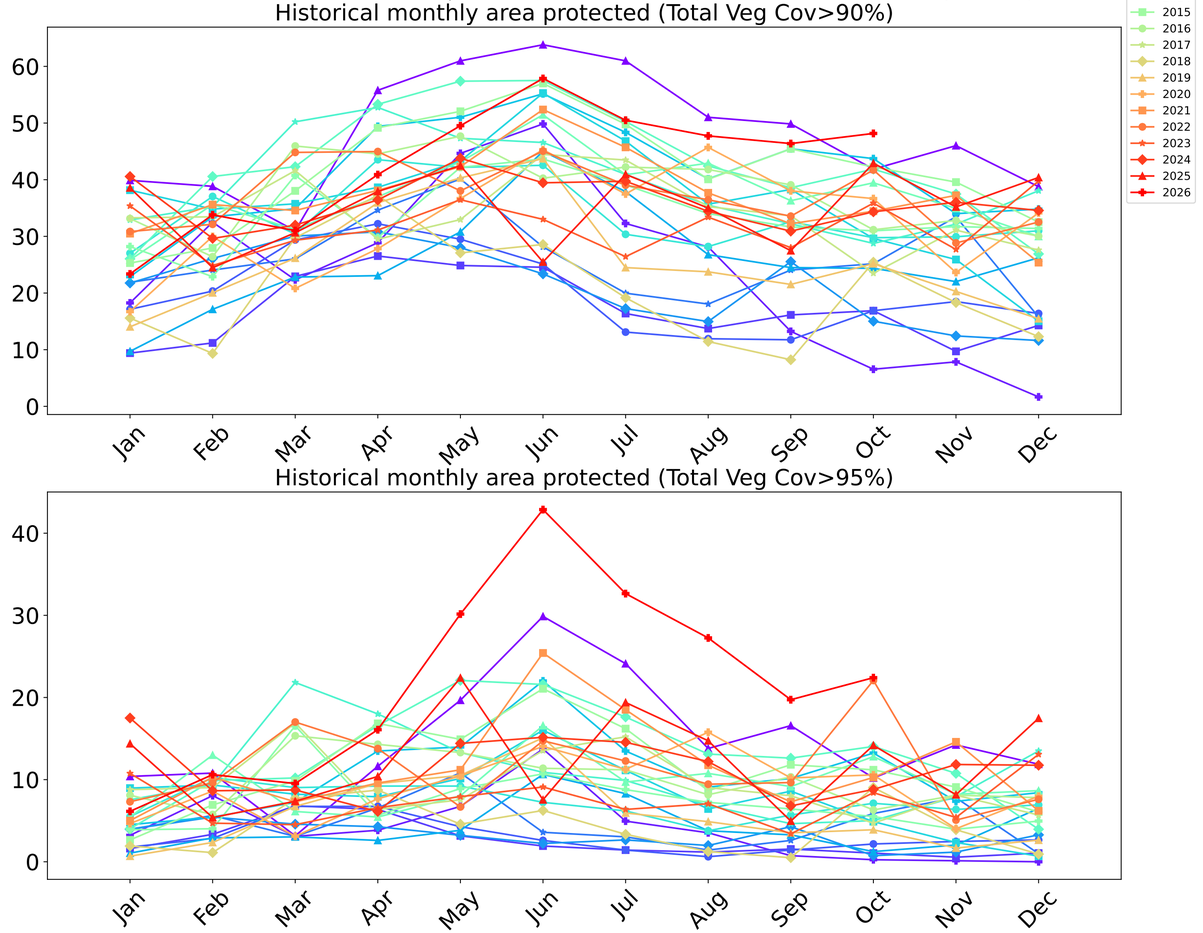
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
74.4
67.8
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
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2026

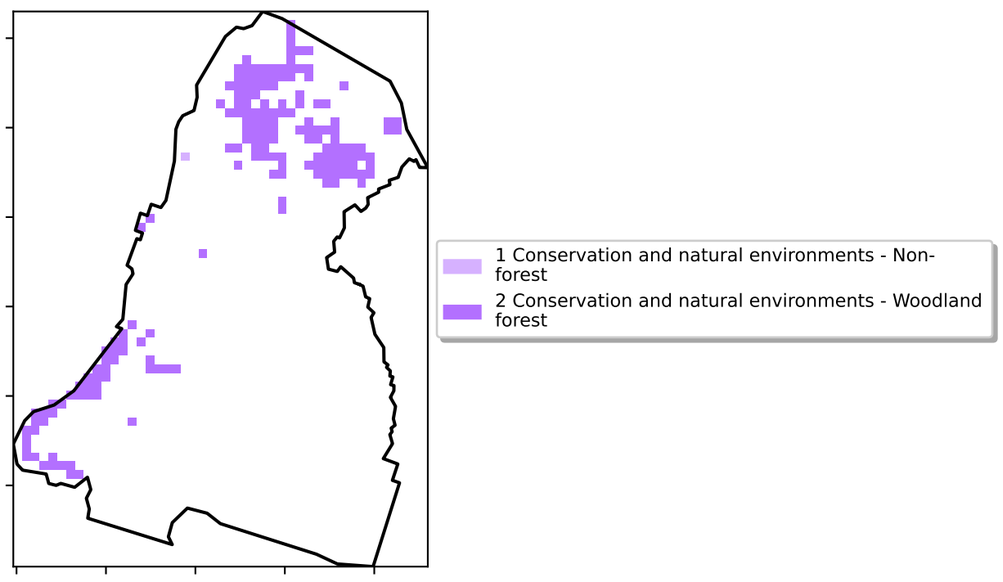

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
32.2
15.3
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
6.8
1.4
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

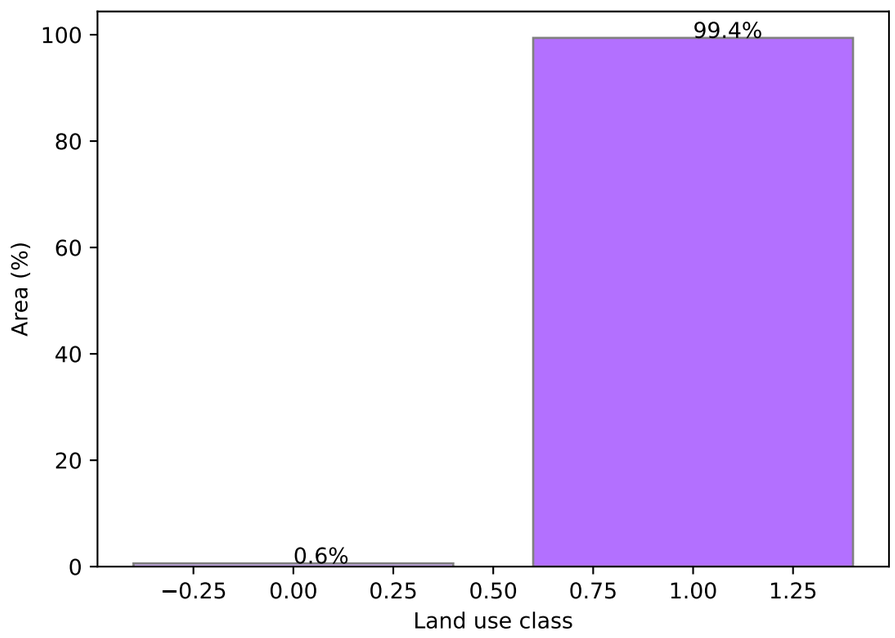
Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

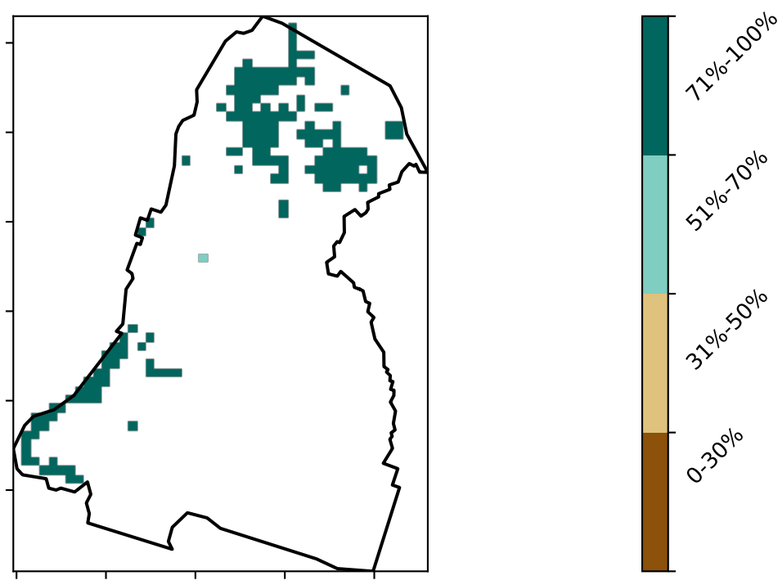
Land use and forest cover



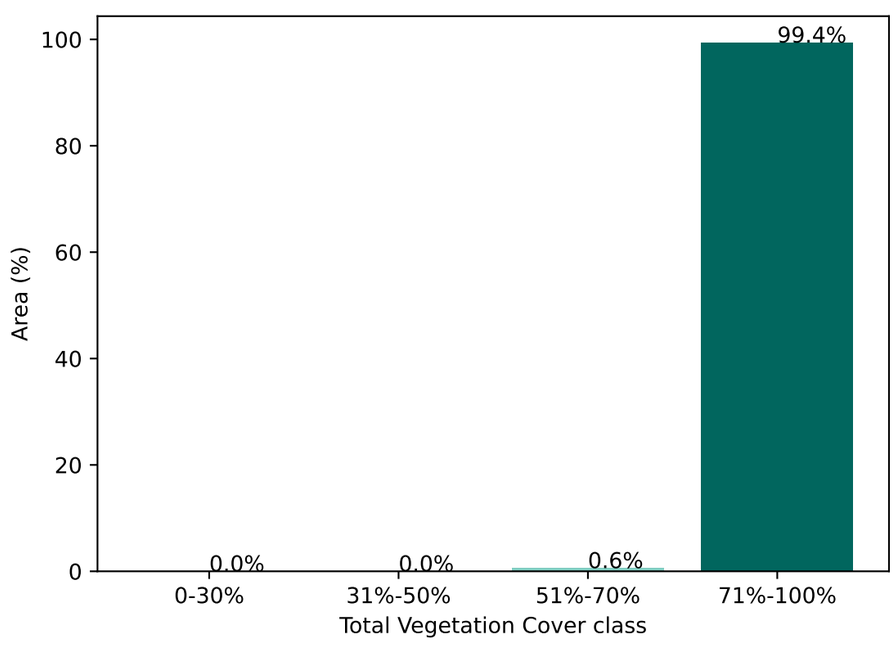
Proportion of each land class in area



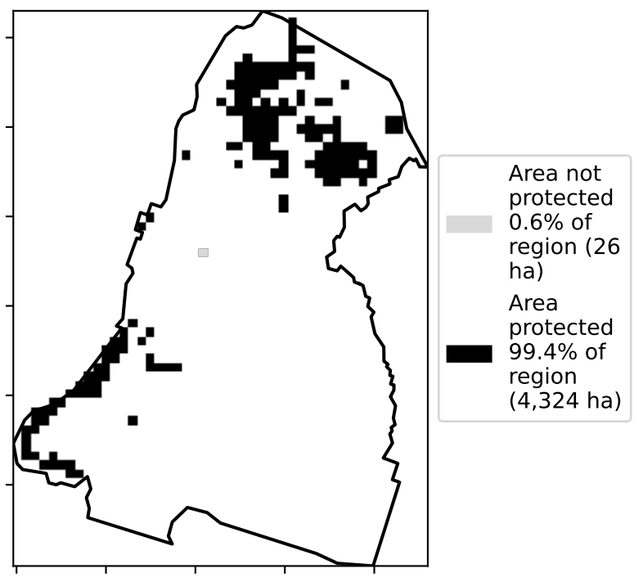
Total Vegetation Cover [%]



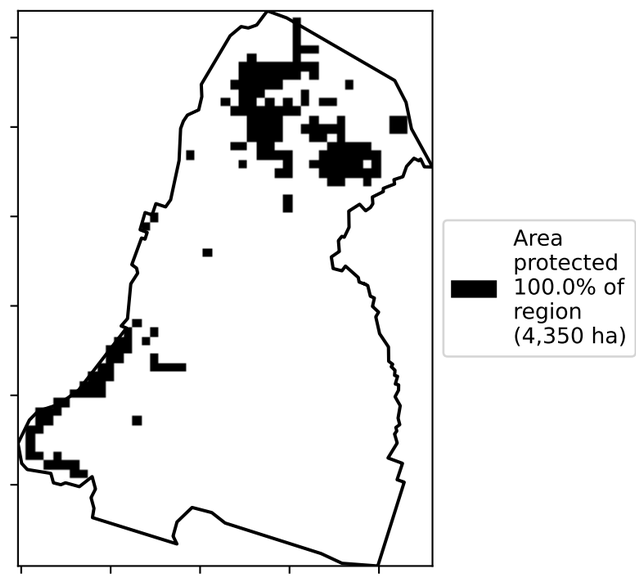
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

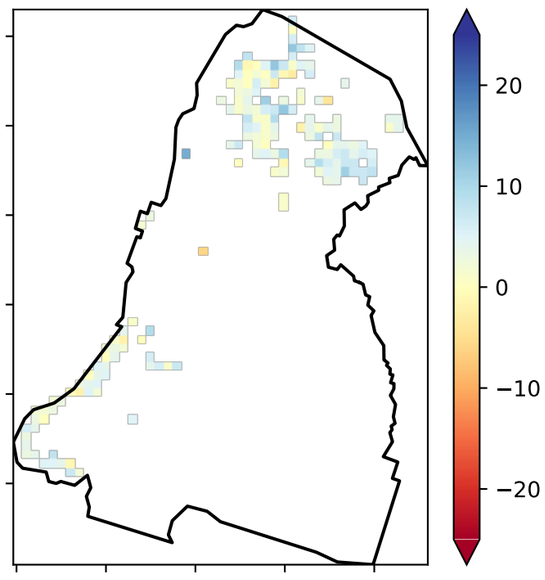


% Area protected from wind erosion (>50%)



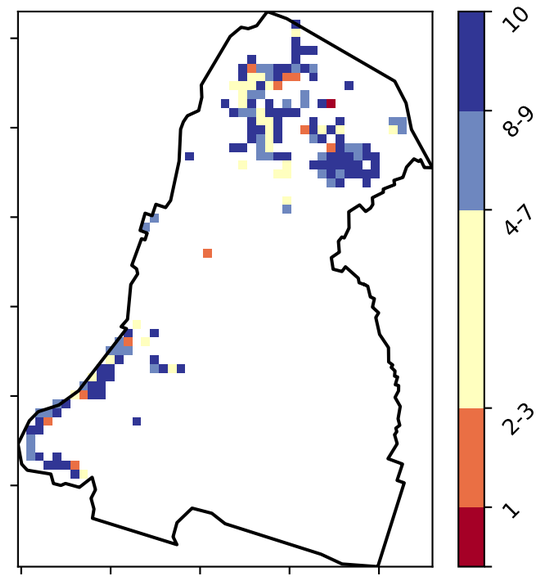
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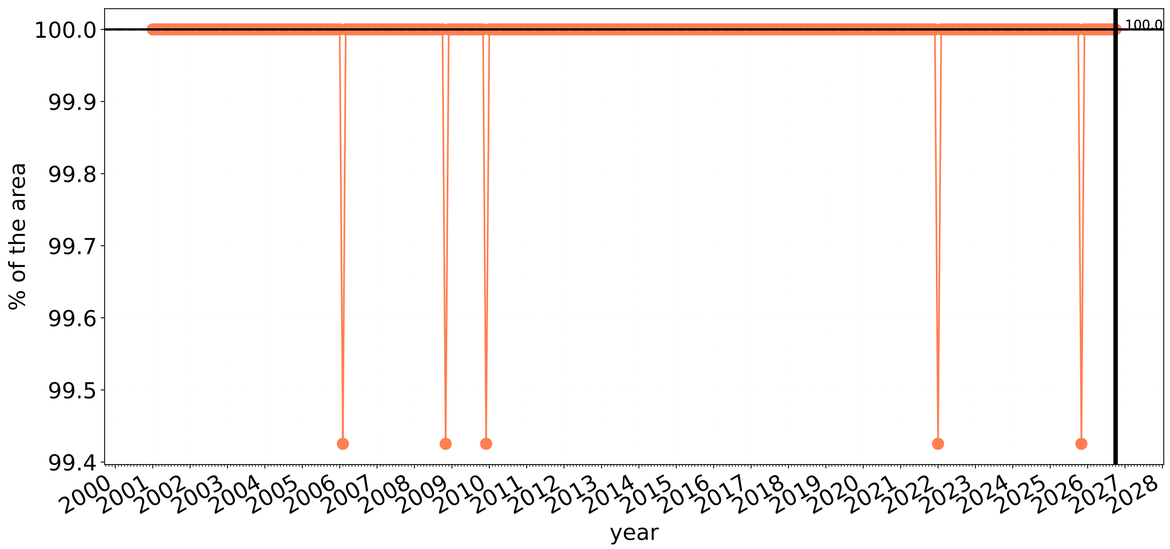
Total Vegetation Cover Decile [%]

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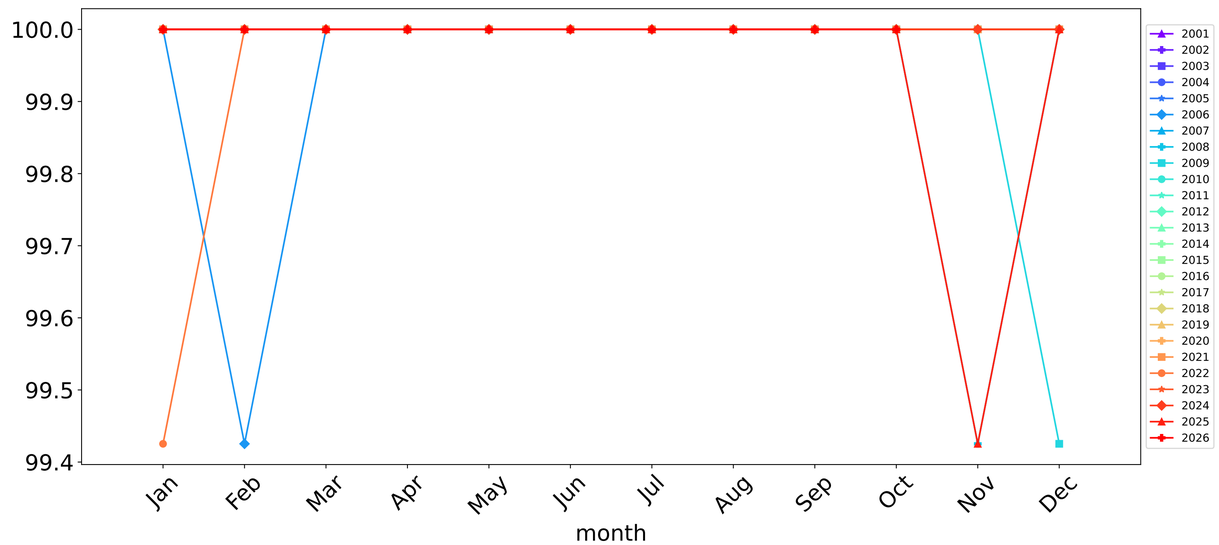


Conservation and natural environments timeseries

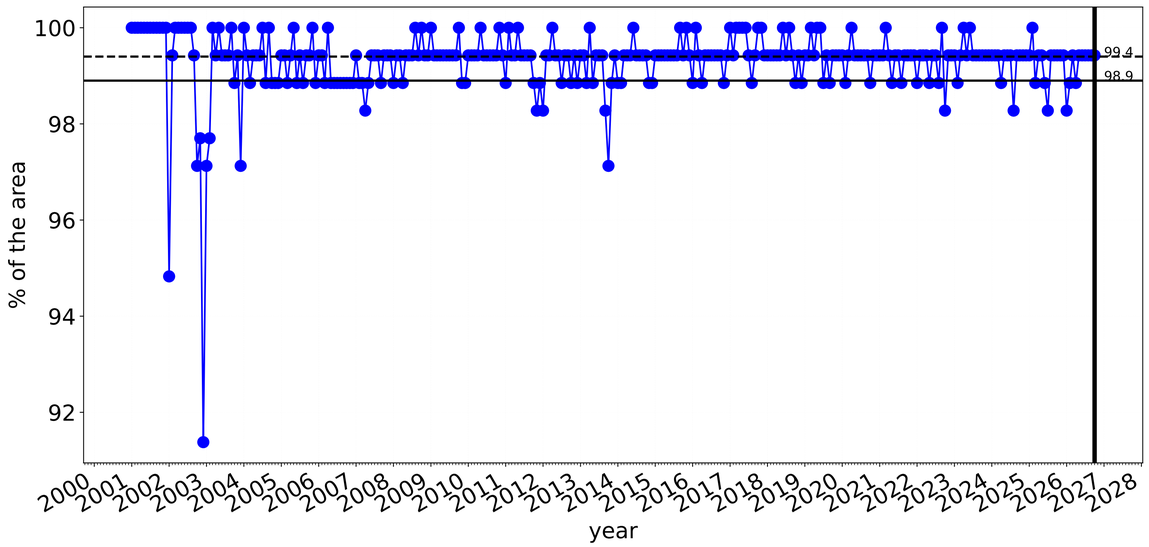
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



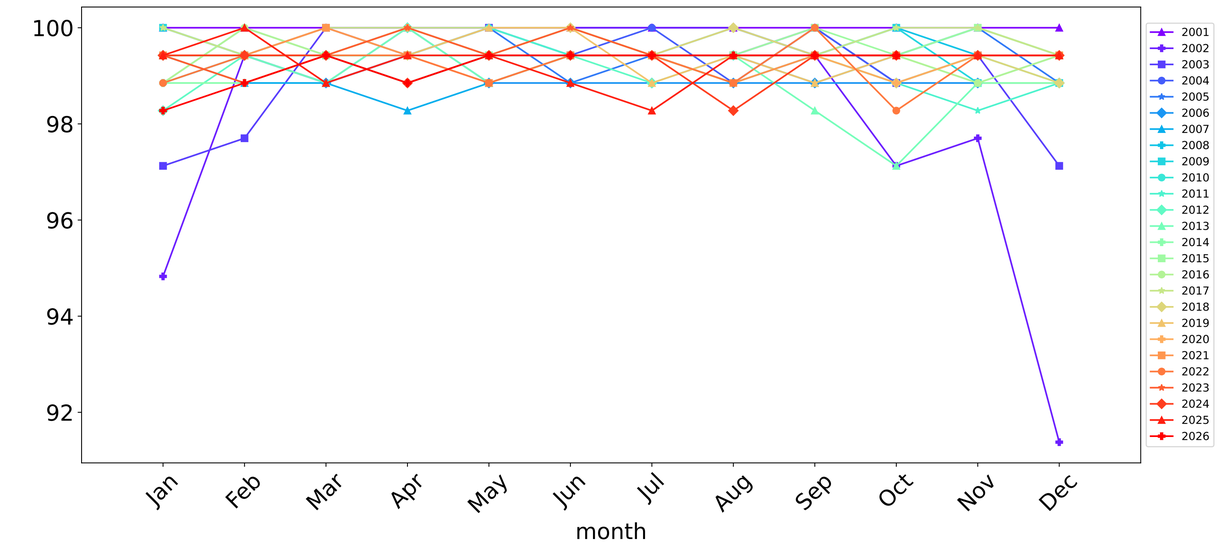
Wind erosion historical monthly area protected (Total Veg Cov >50%)

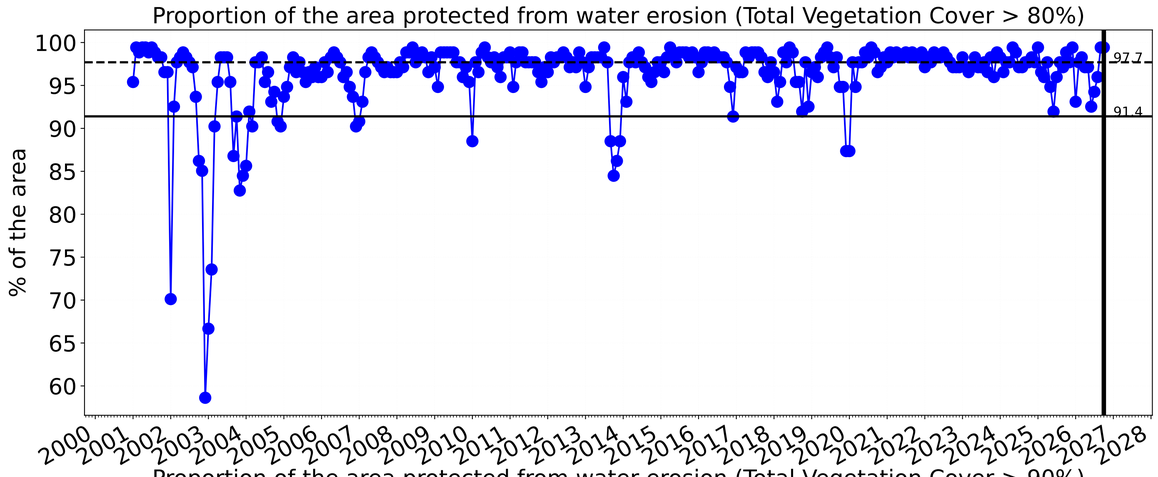


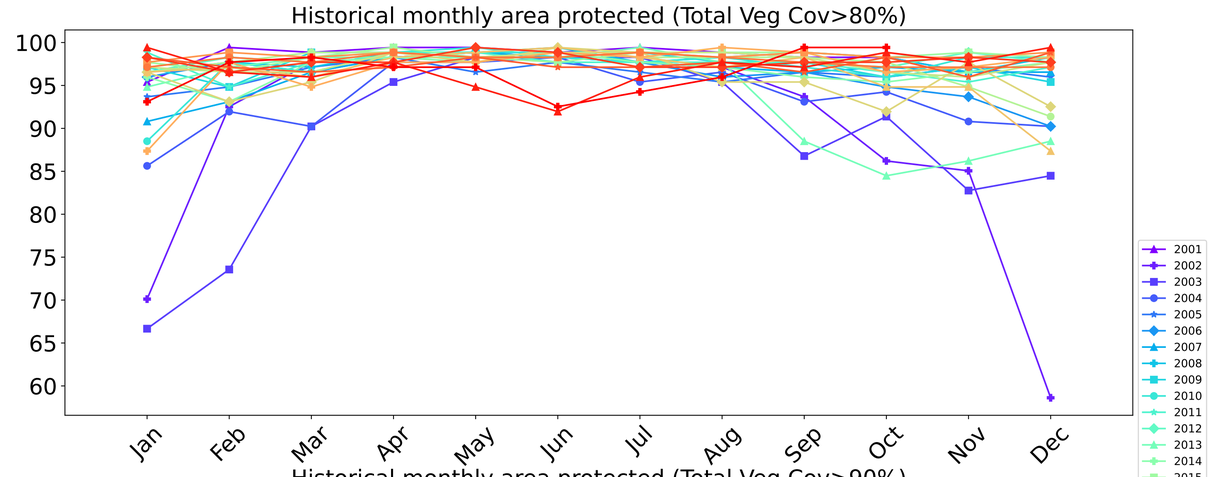
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

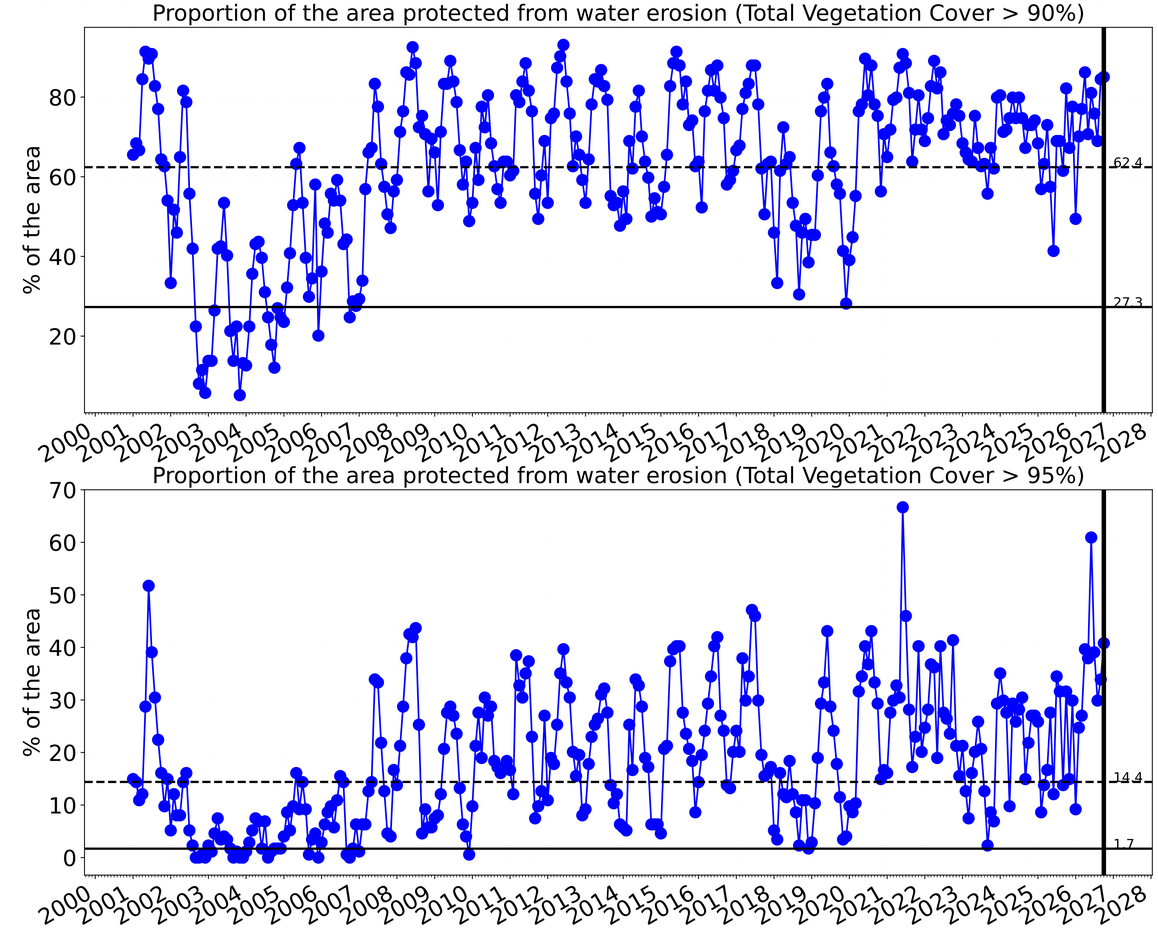


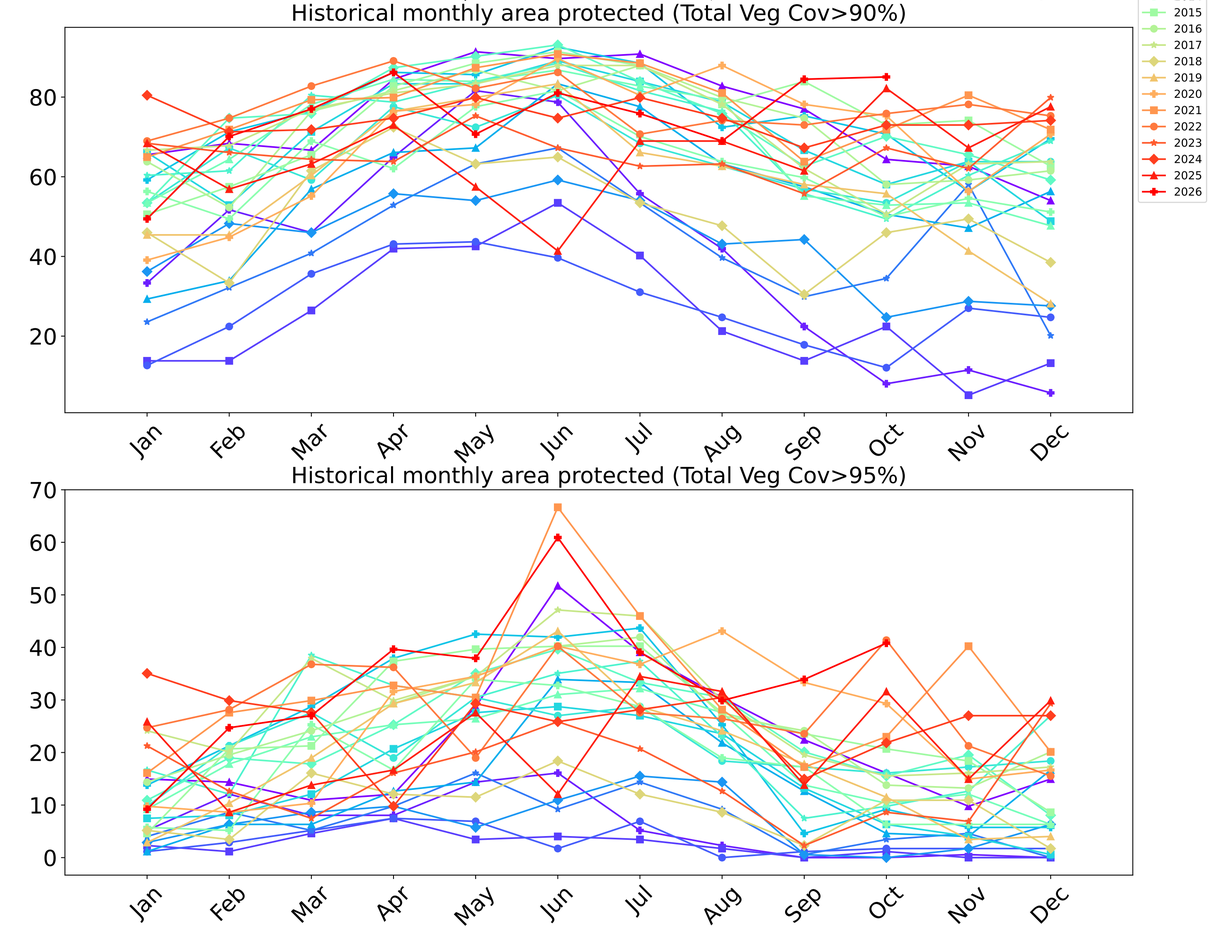
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
97.7
91.4
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
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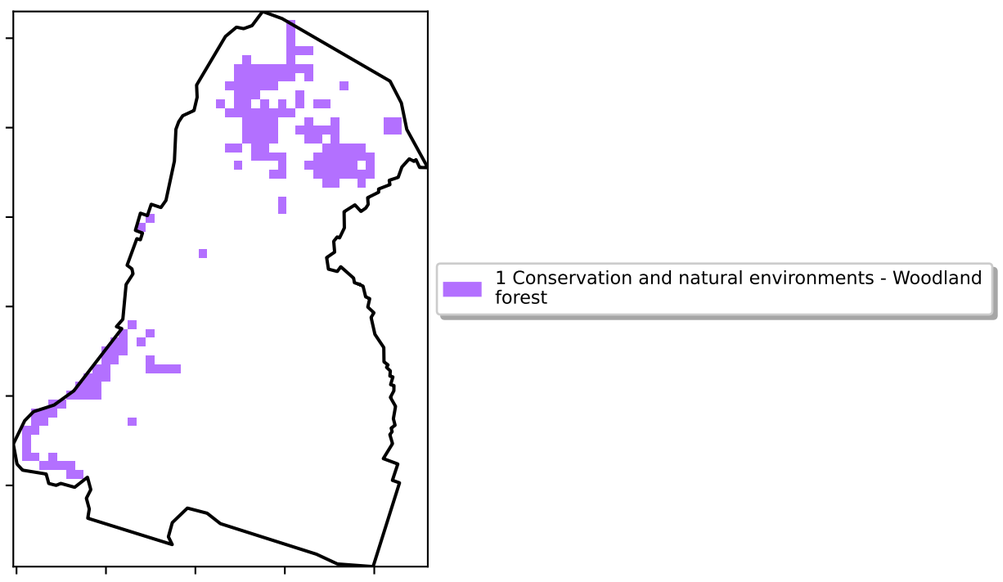

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
62.4
27.3
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
14.4
1.7
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
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Oct
Nov
Dec

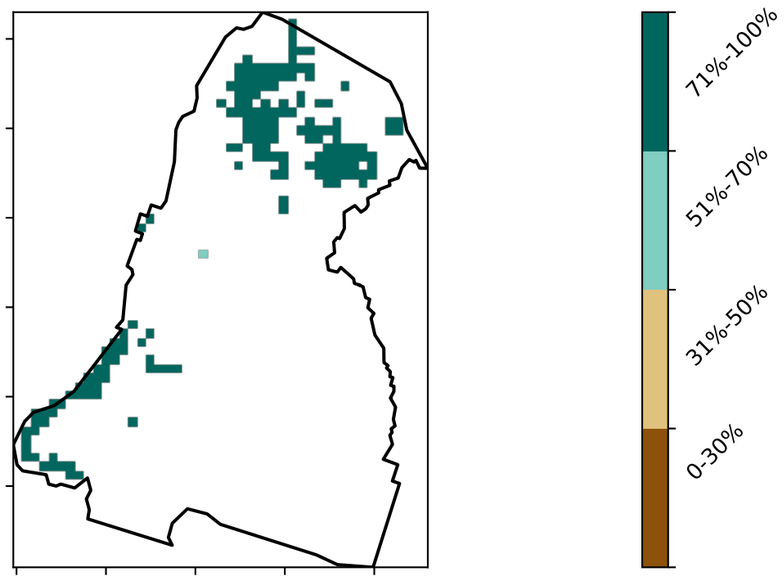
Conservation and natural environments Woodland forest

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

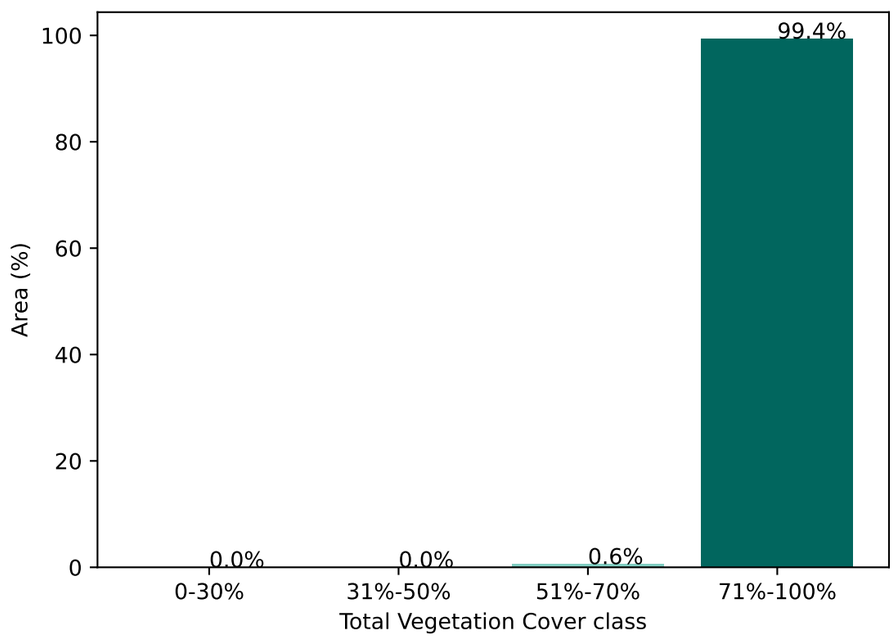
Land use and forest cover



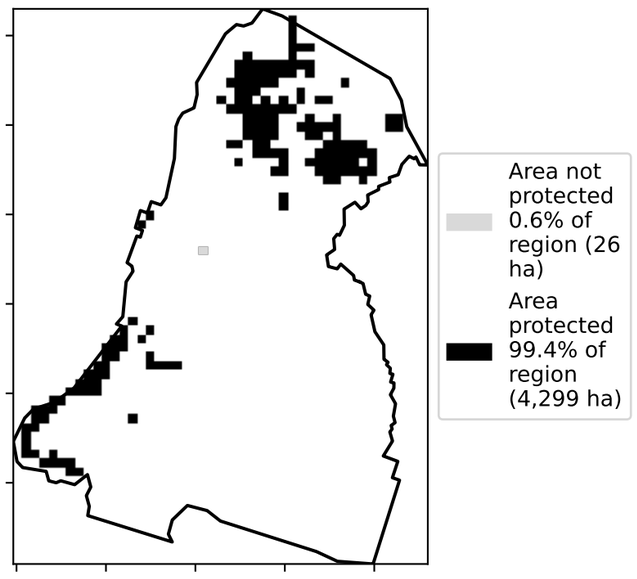
Total Vegetation Cover [%]



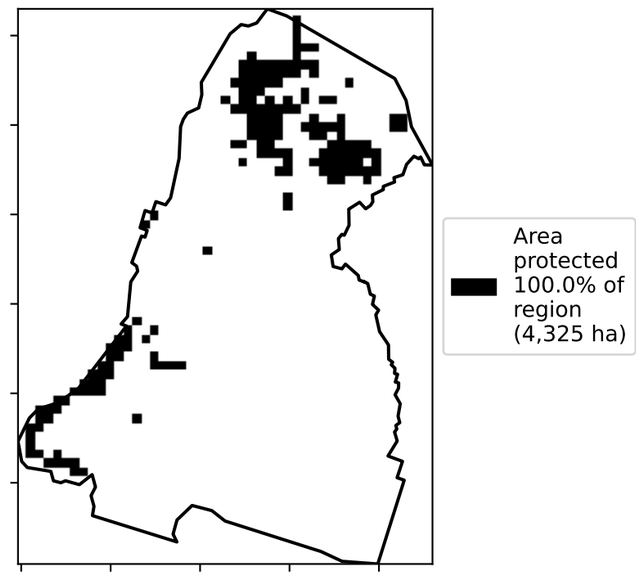
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

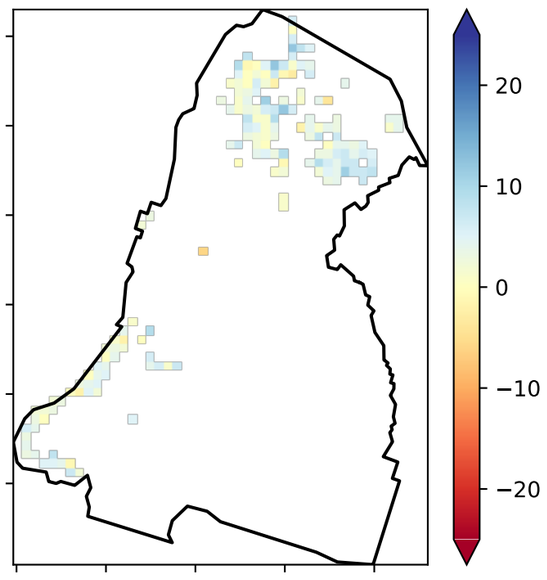


% Area protected from wind erosion (>50%)



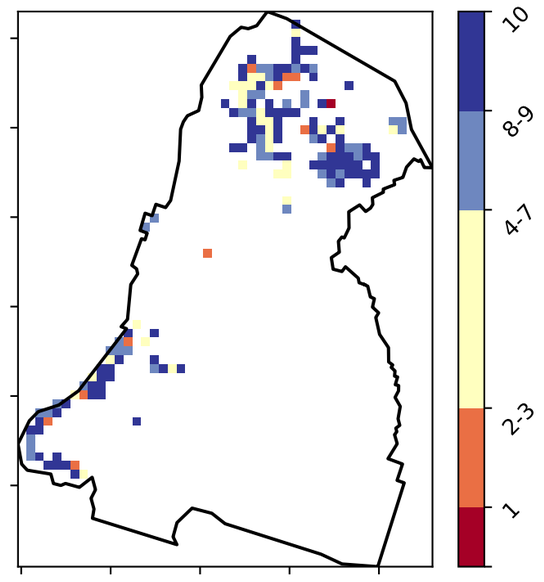
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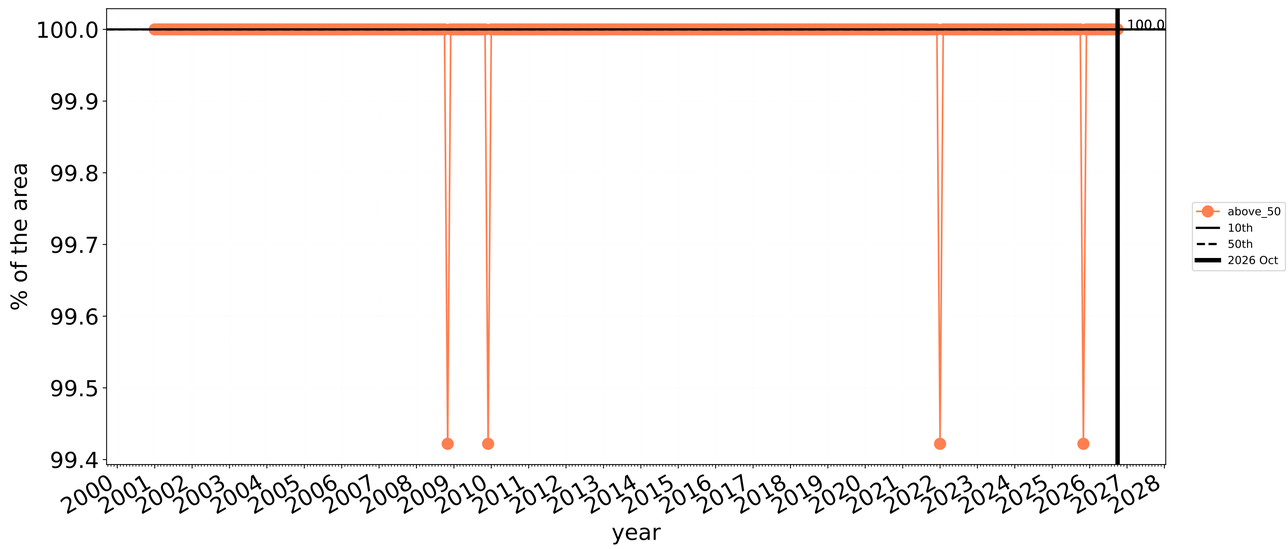
Total Vegetation Cover Decile [%]

Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

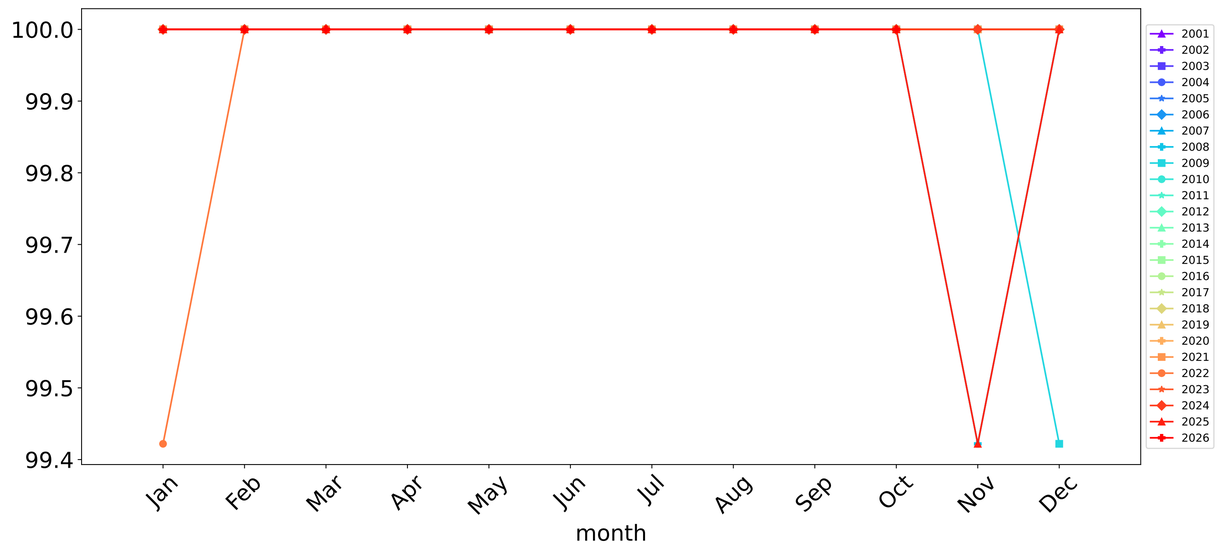


Conservation and natural environments Woodland forest timeseries

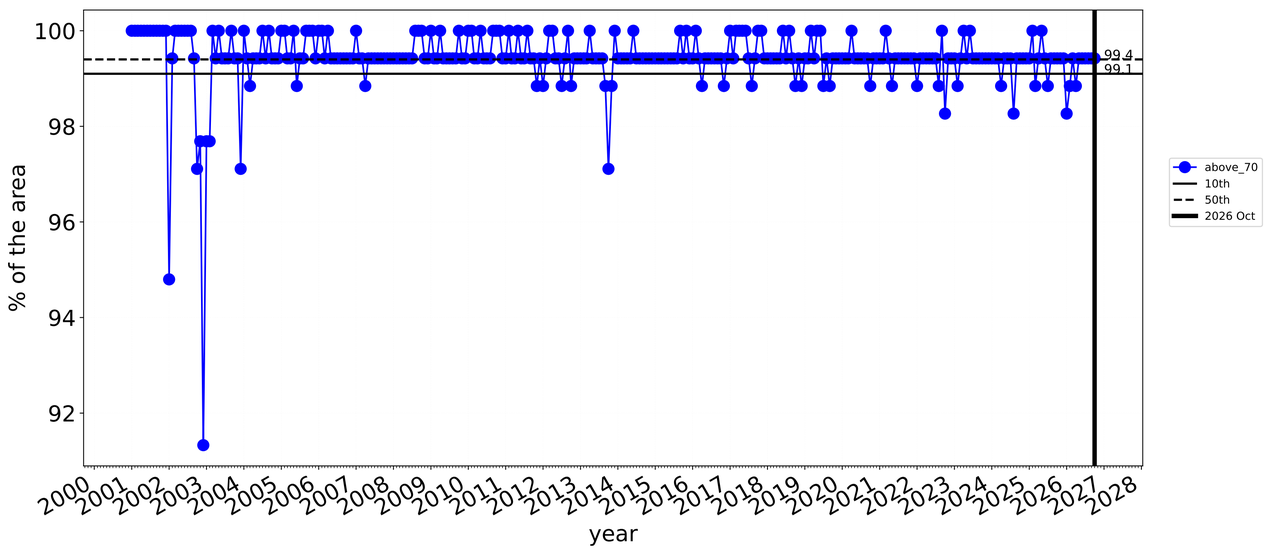
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



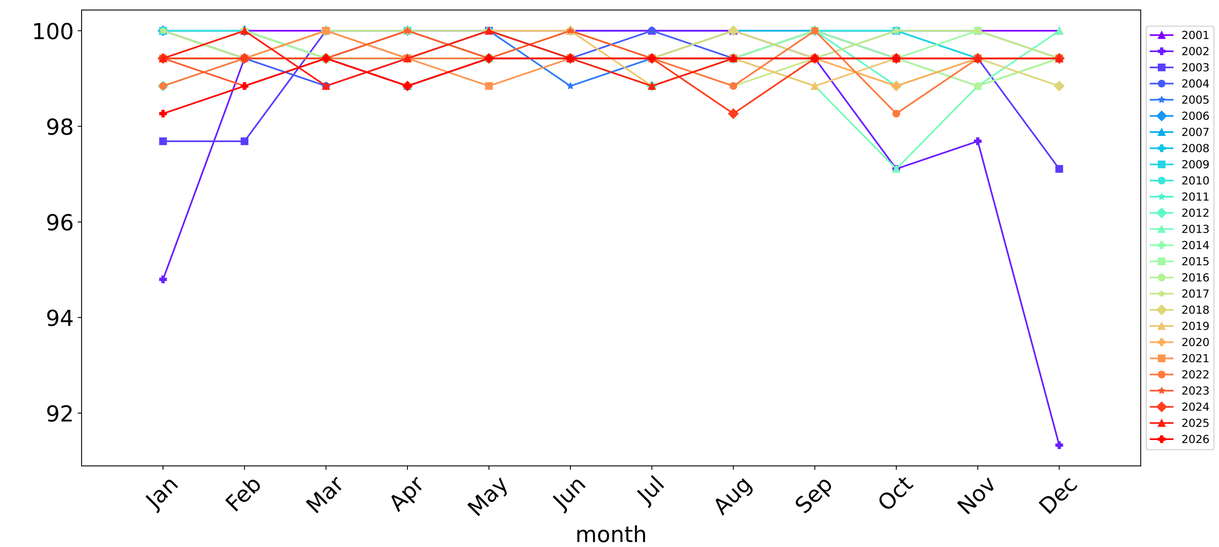
Wind erosion historical monthly area protected (Total Veg Cov >50%)

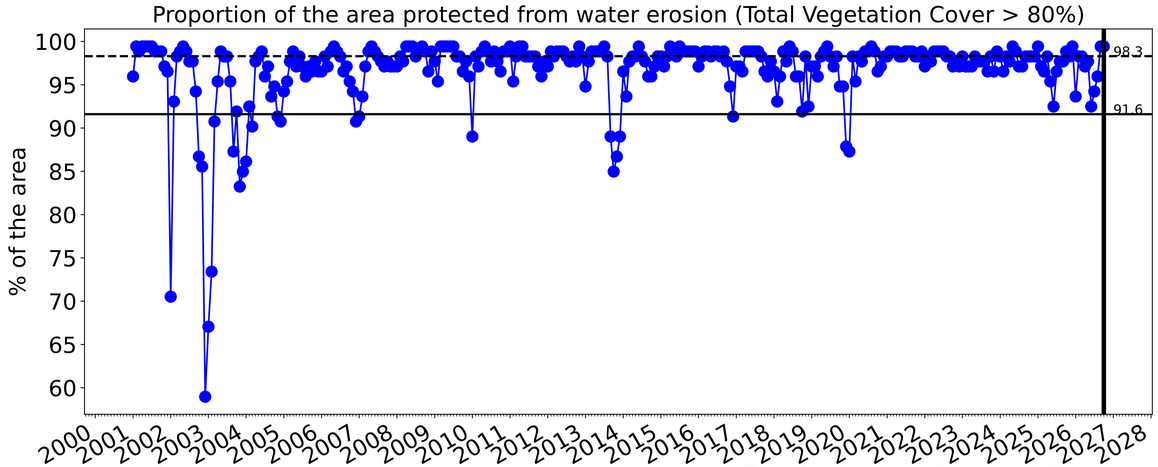


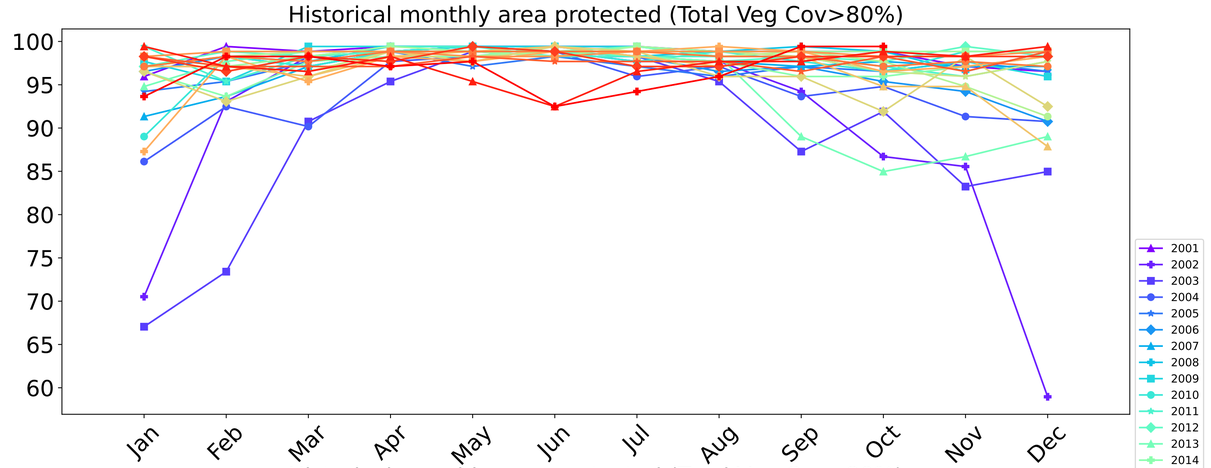
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

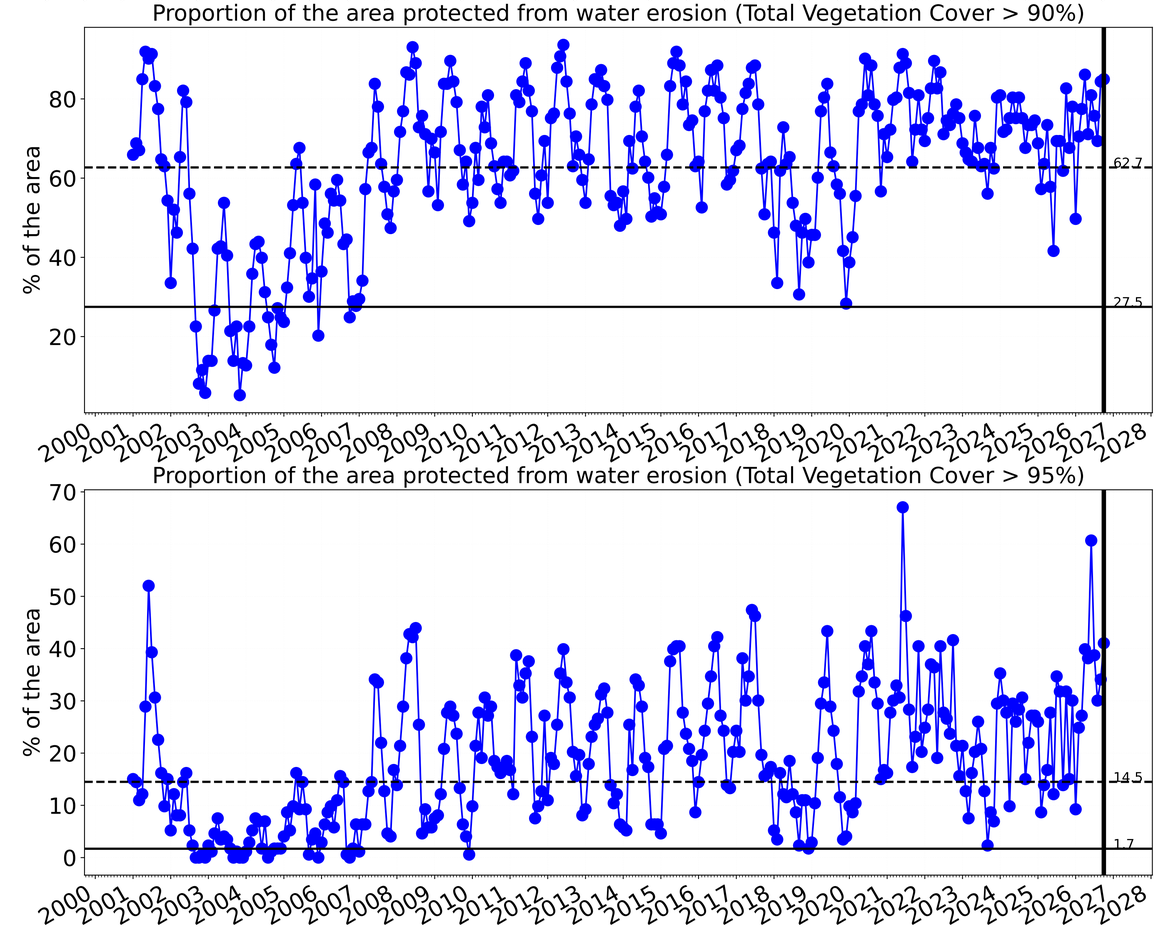


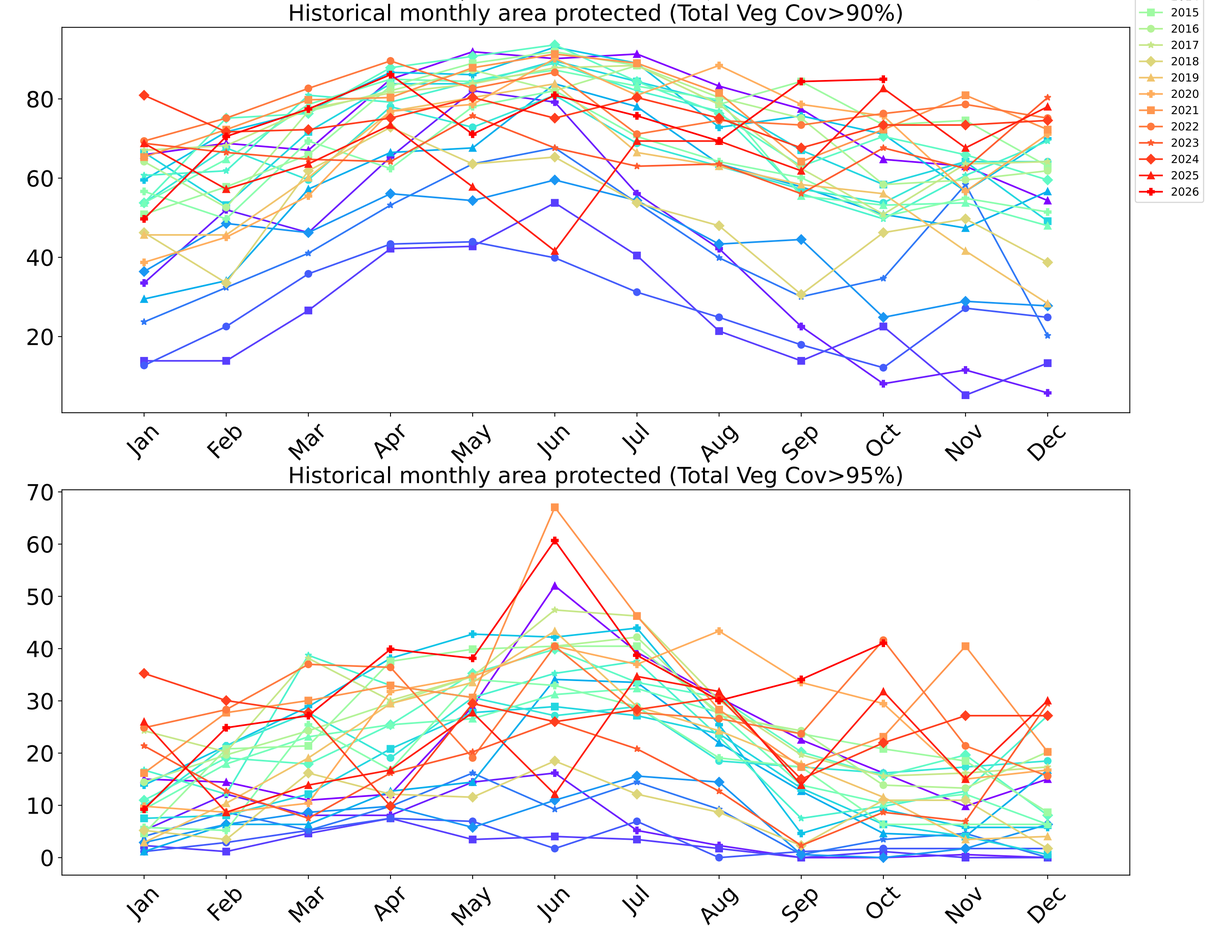
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.3
91.6
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026

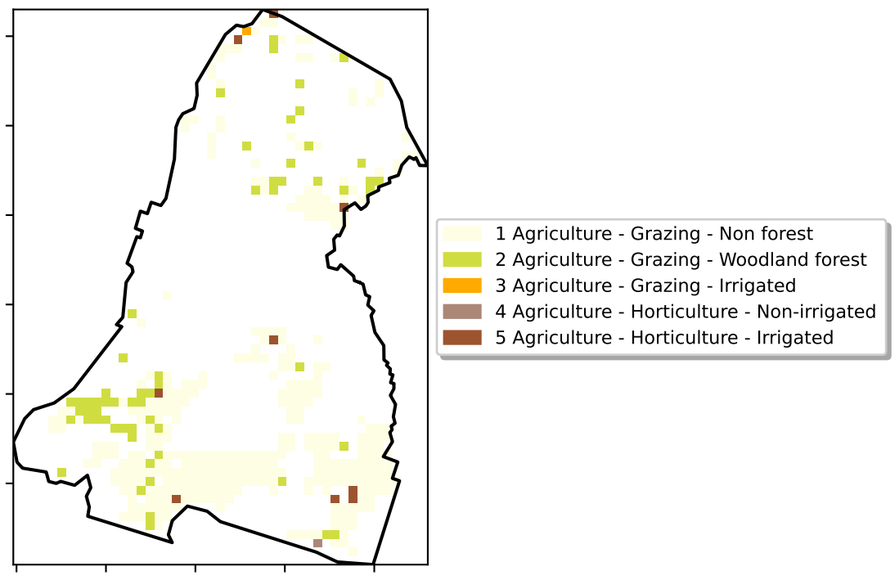

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
62.7
27.5
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
14.5
1.7
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

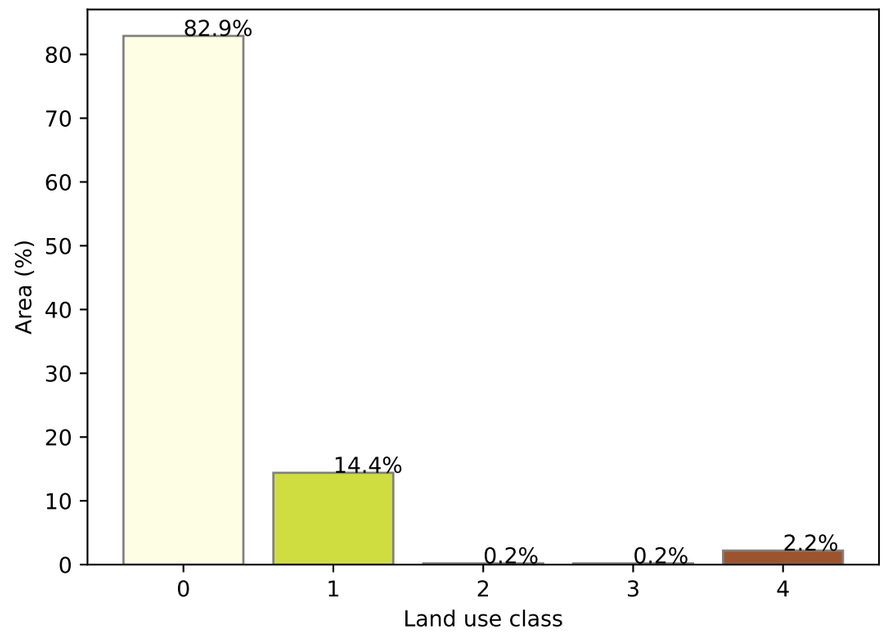
Agriculture

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

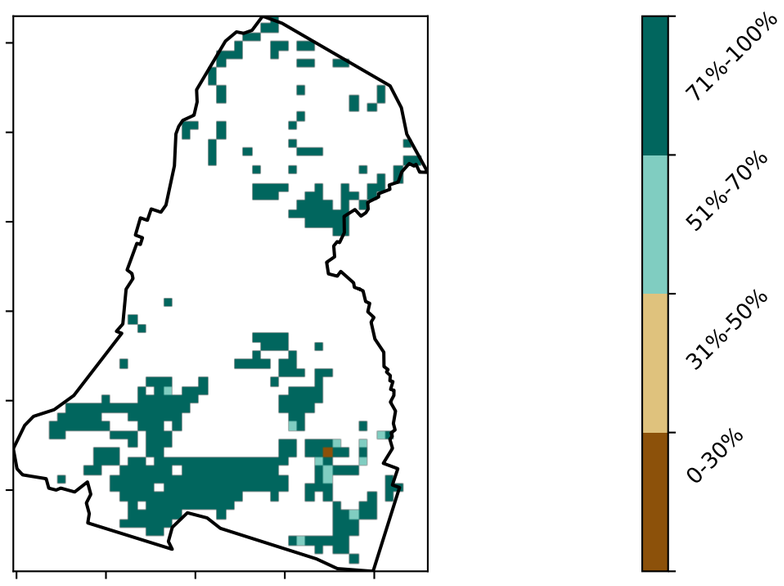
Land use and forest cover



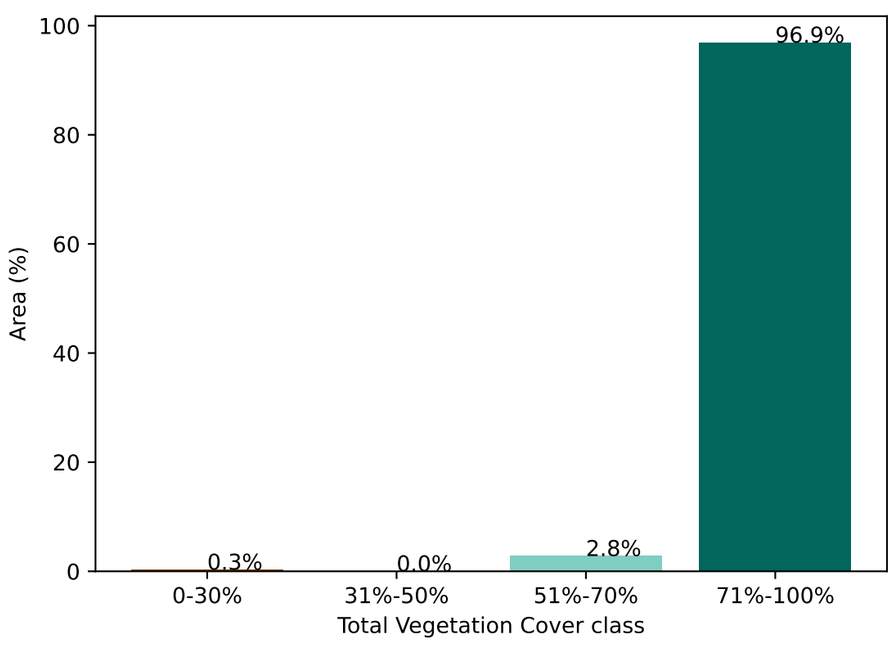
Proportion of each land class in area



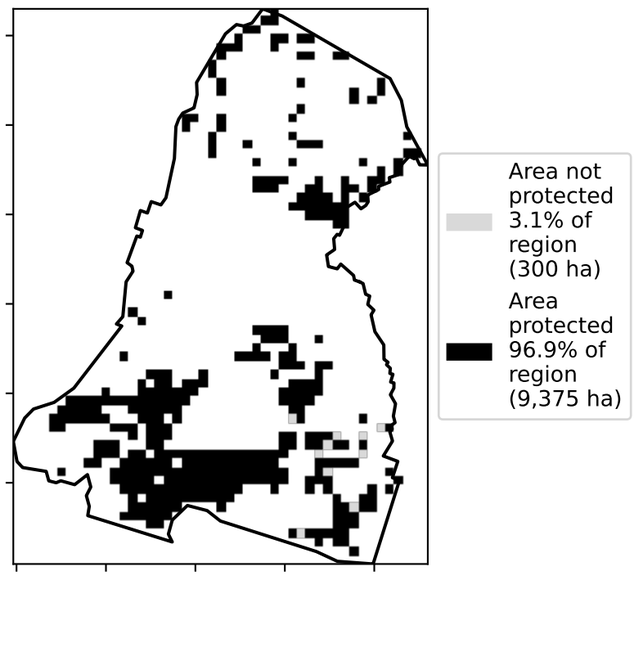
Total Vegetation Cover [%]



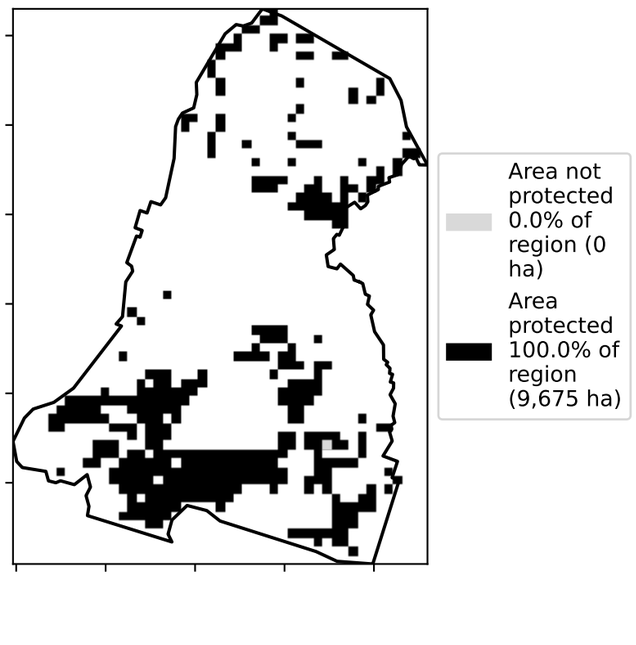
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

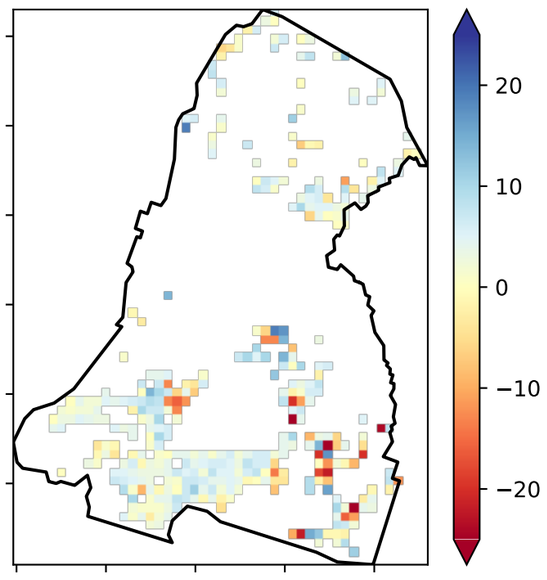


% Area protected from wind erosion (>50%)



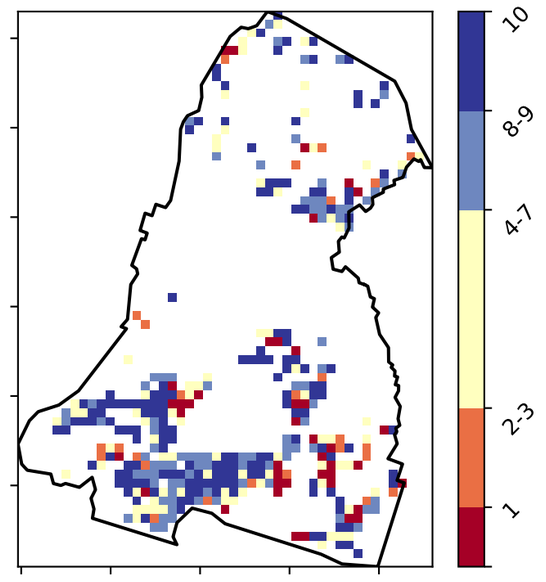
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



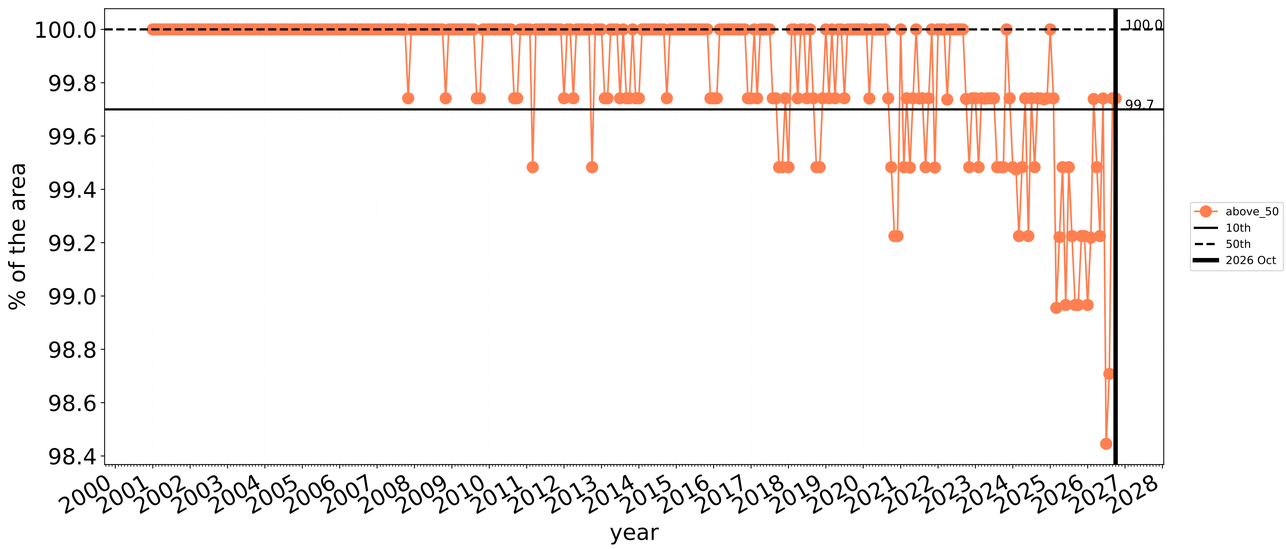
Total Vegetation Cover Decile [%]

Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

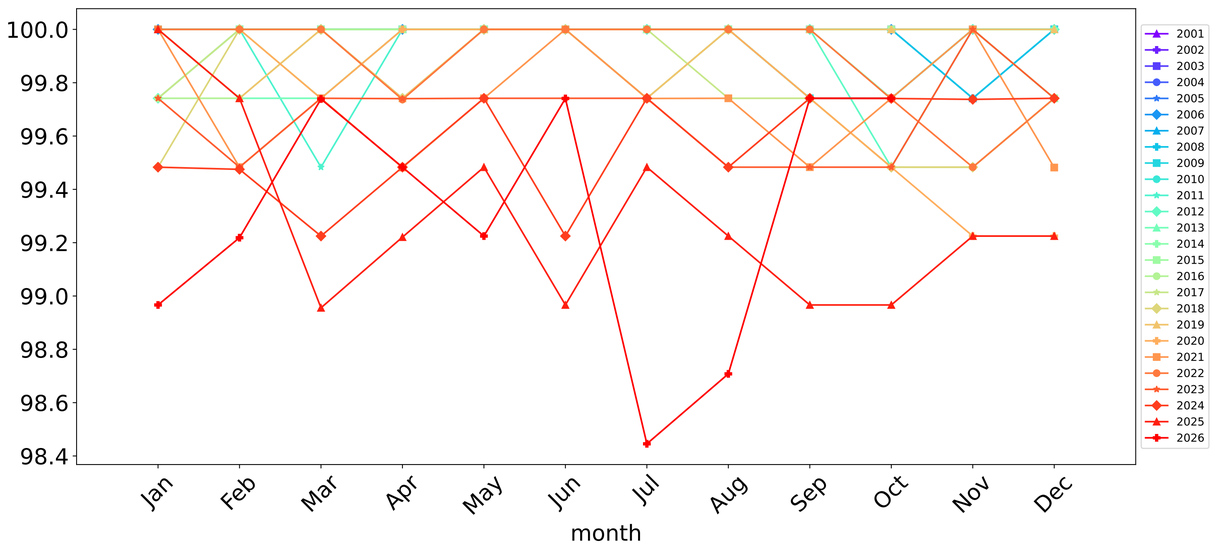


Agriculture timeseries

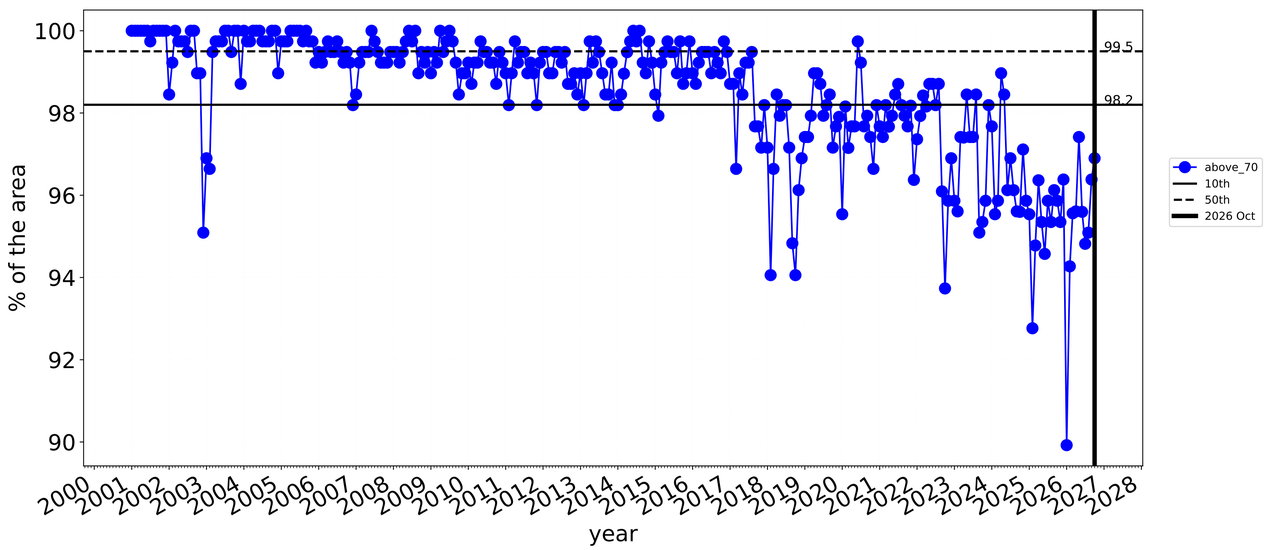
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



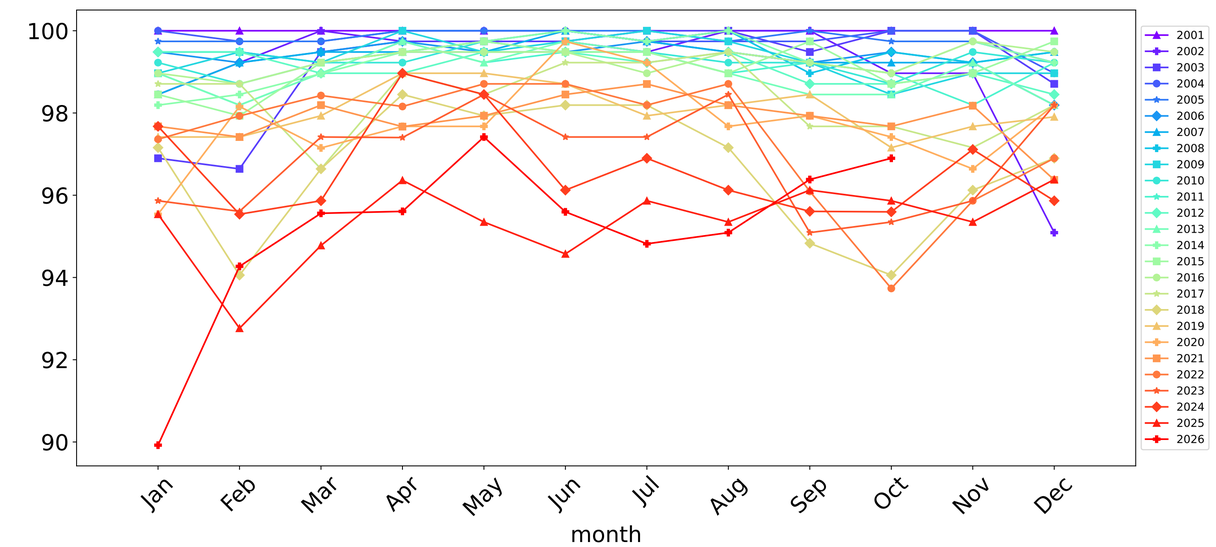
Wind erosion historical monthly area protected (Total Veg Cov >50%)



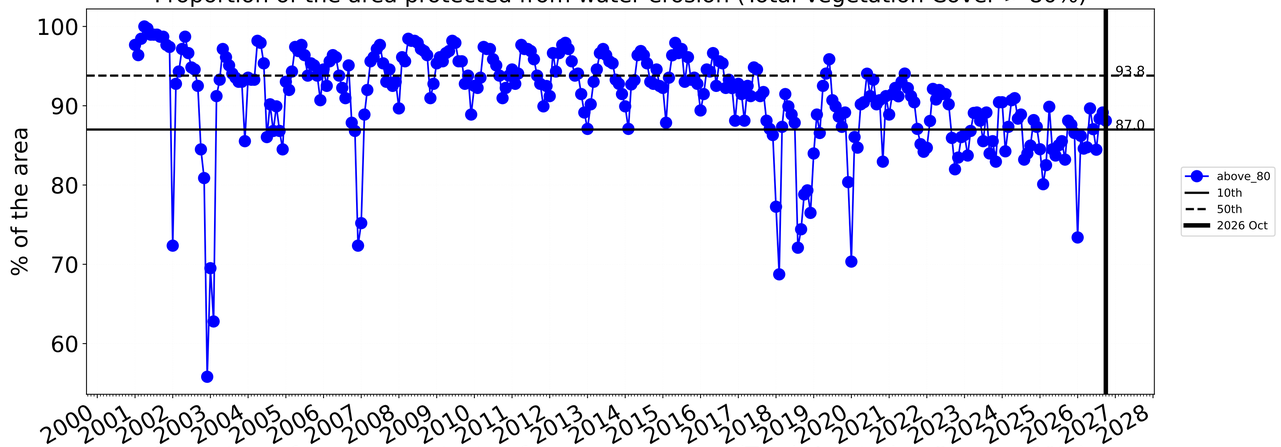
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



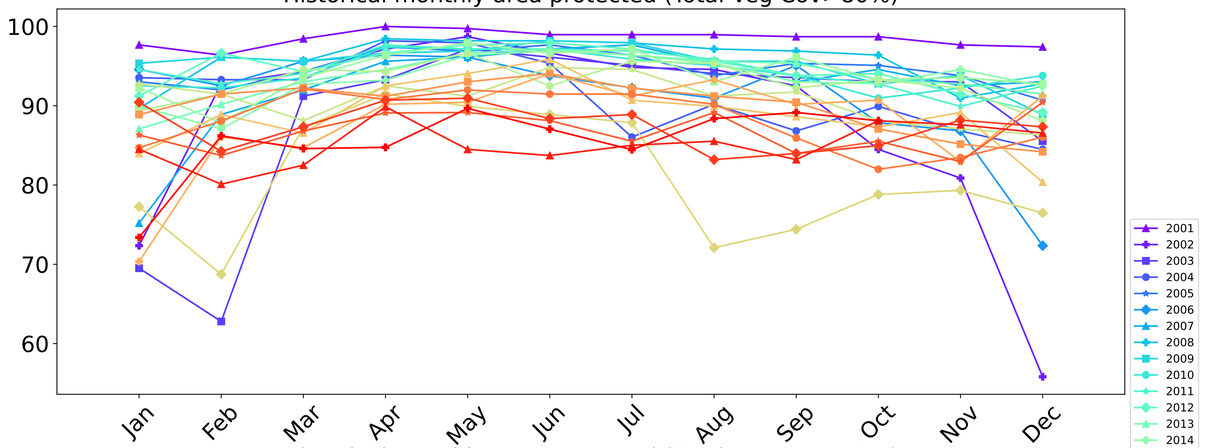
Water erosion historical monthly area protected (Total Veg Cov>70%)



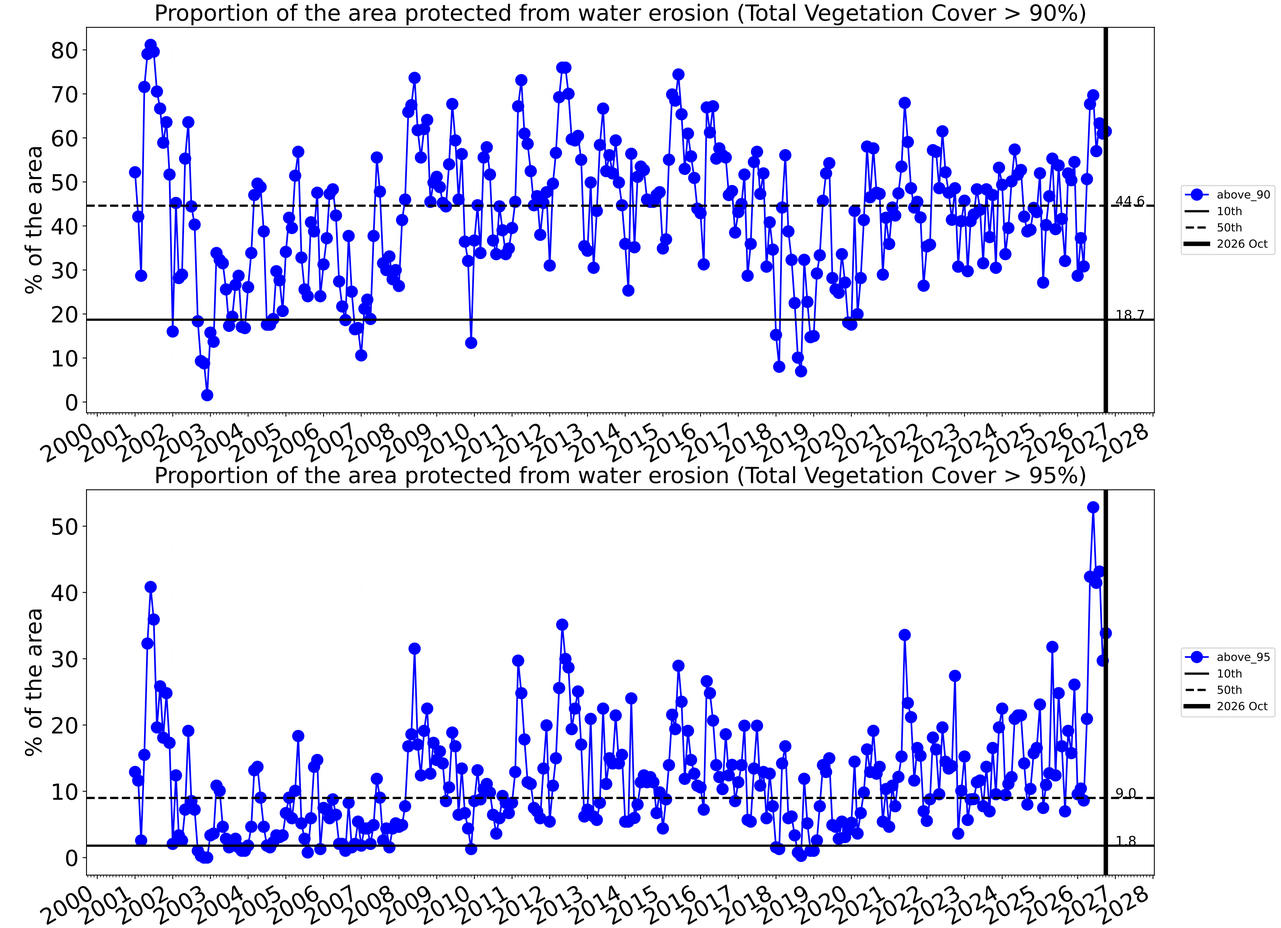
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



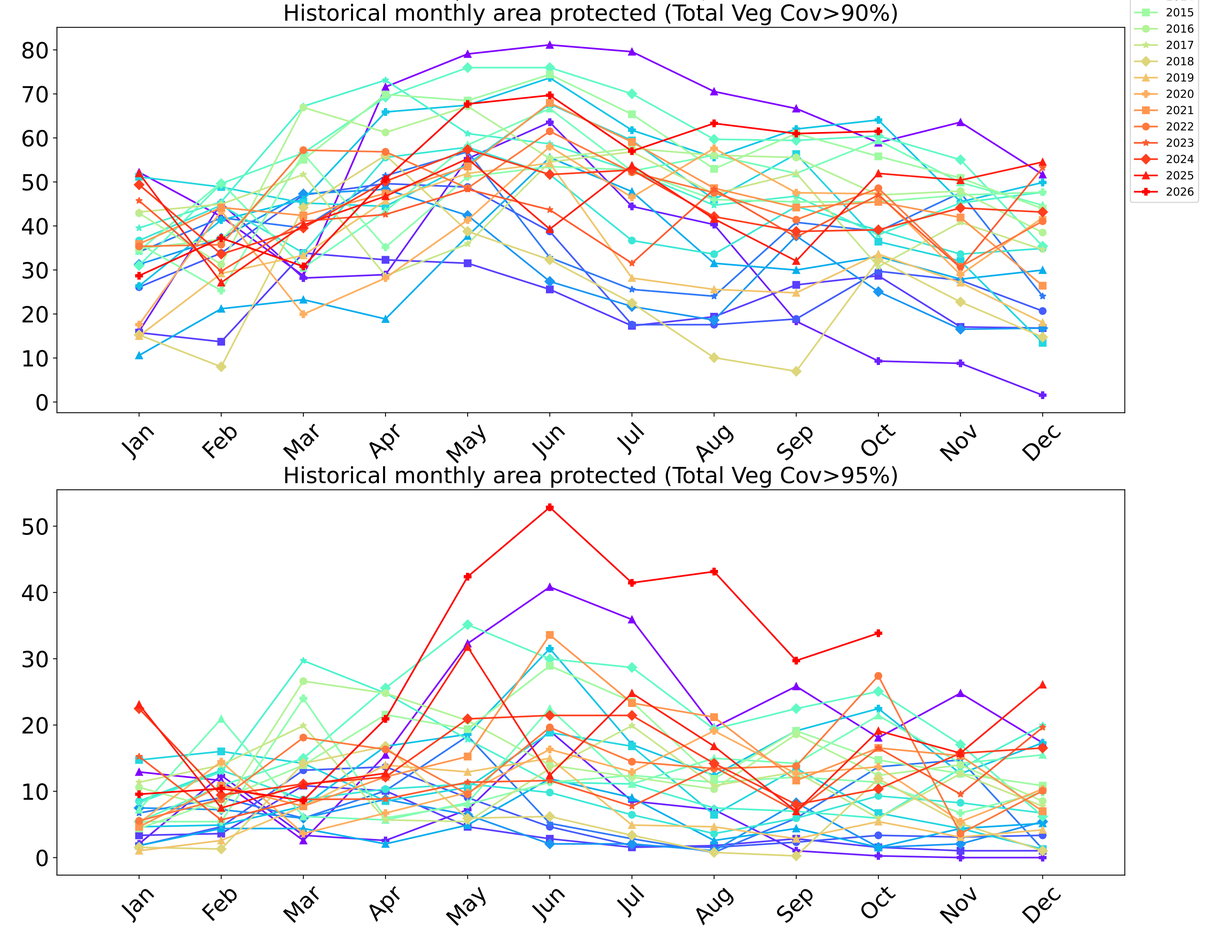
Historical monthly area protected (Total Veg Cov>80%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)



Historical monthly area protected (Total Veg Cov>90%)



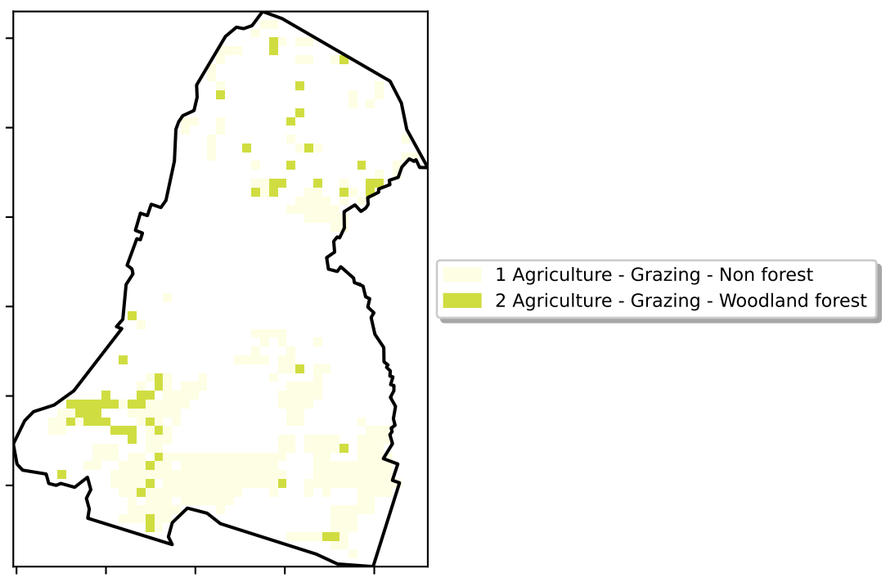
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

Historical monthly area protected (Total Veg Cov>95%)

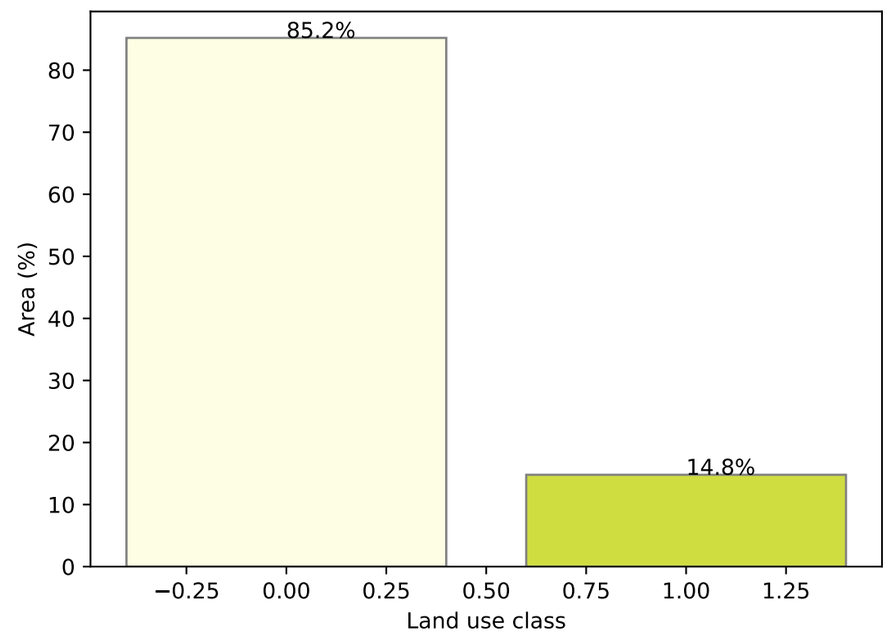
Grazing

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

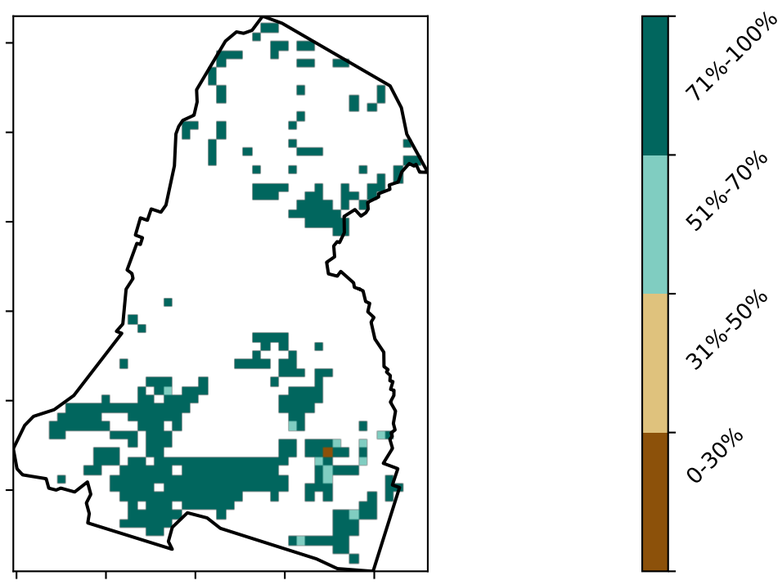
Land use and forest cover



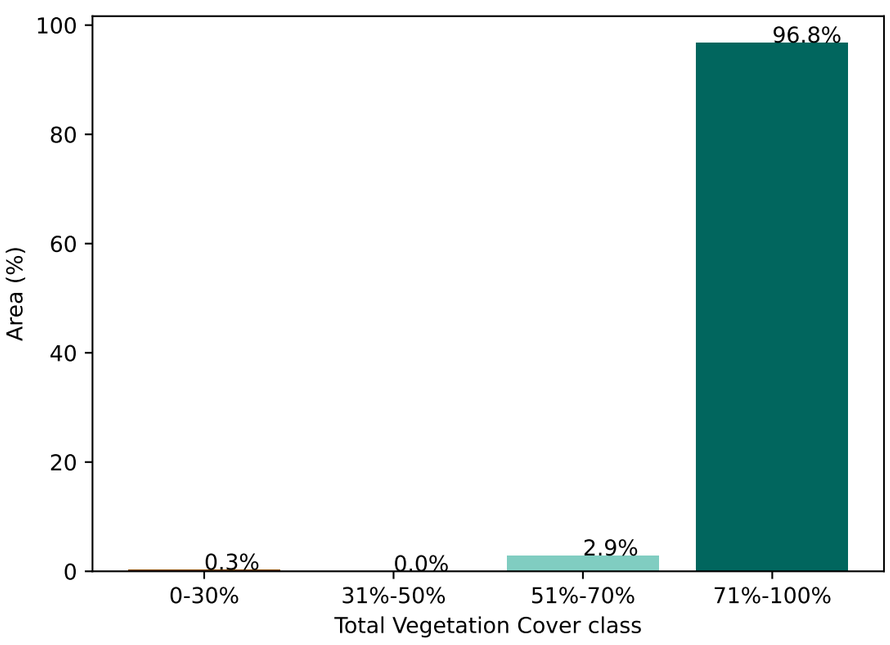
Proportion of each land class in area



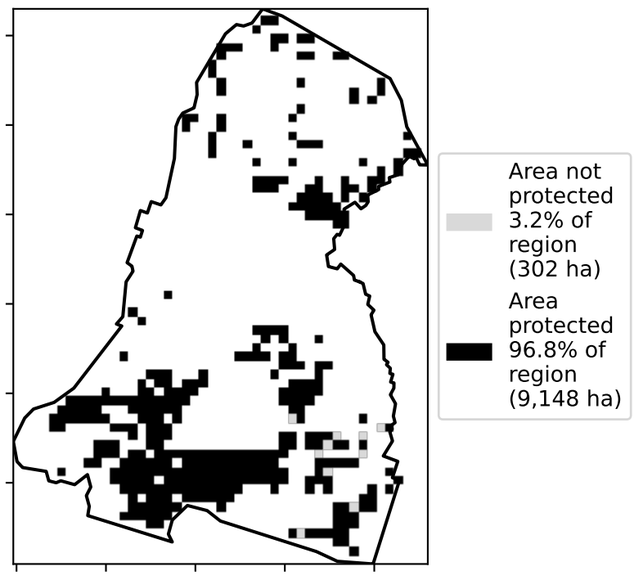
Total Vegetation Cover [%]



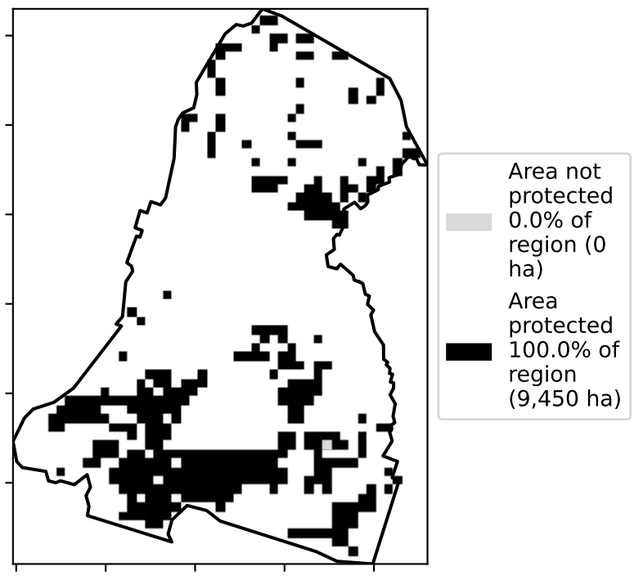
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

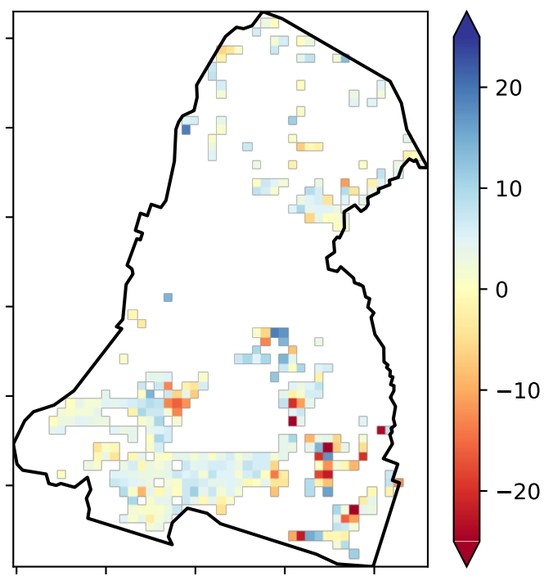


% Area protected from wind erosion (>50%)



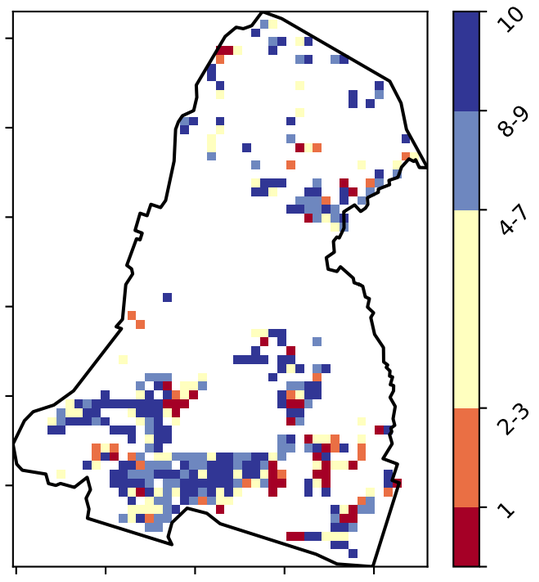
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



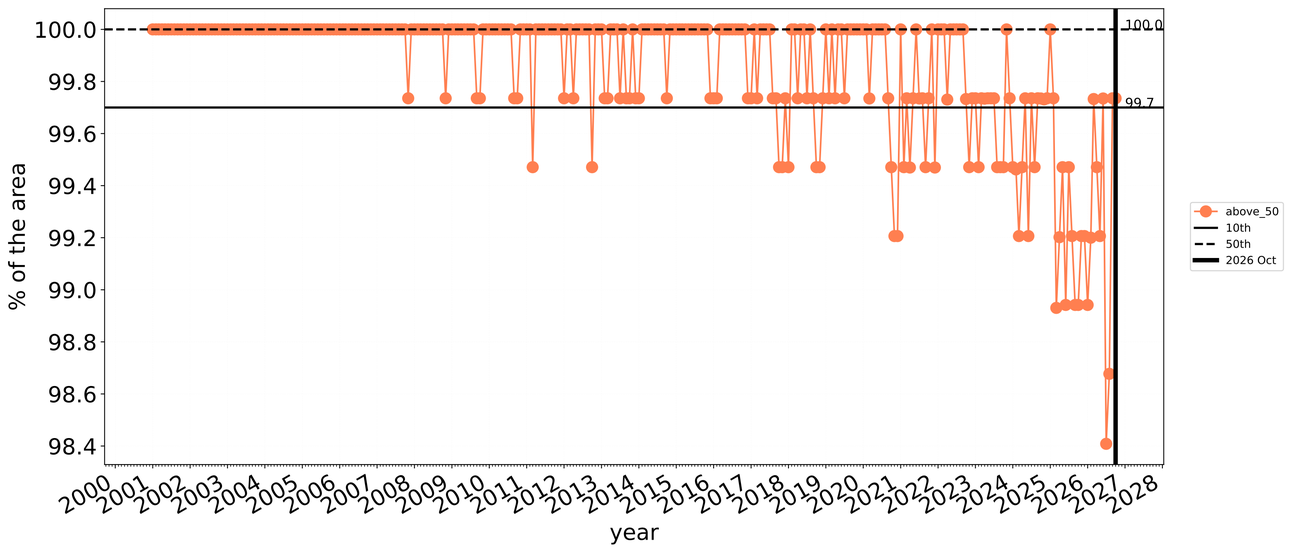
Total Vegetation Cover Decile [%]

Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

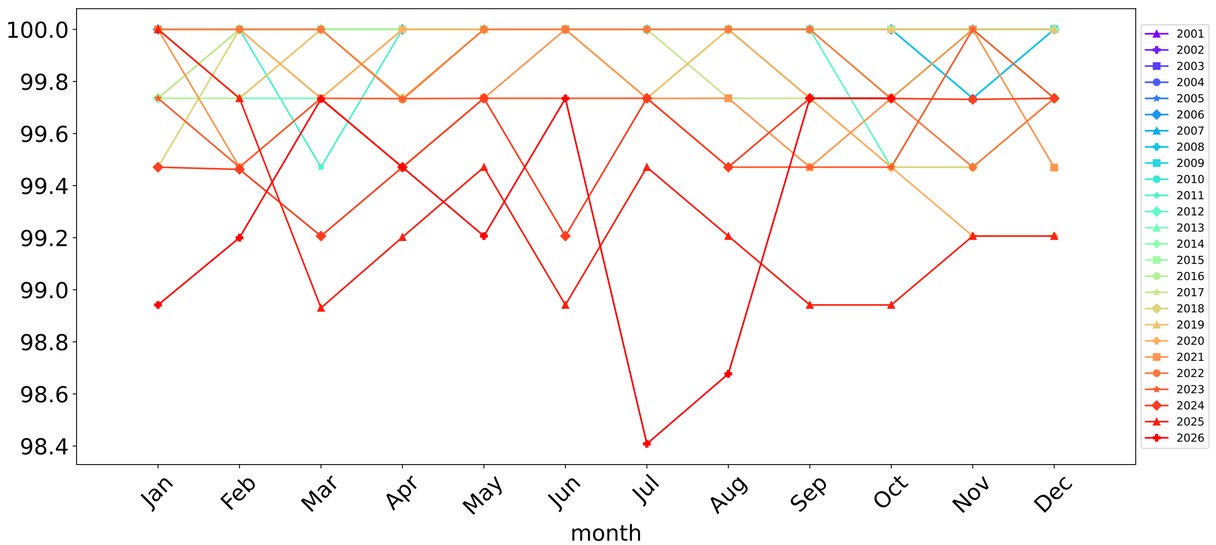


Grazing timeseries

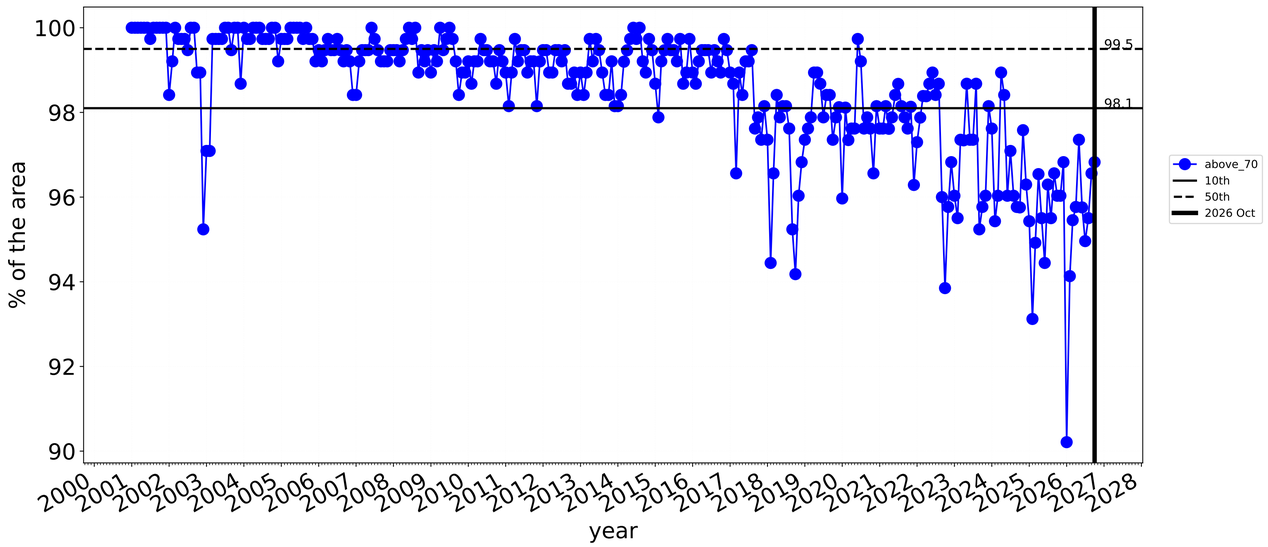
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



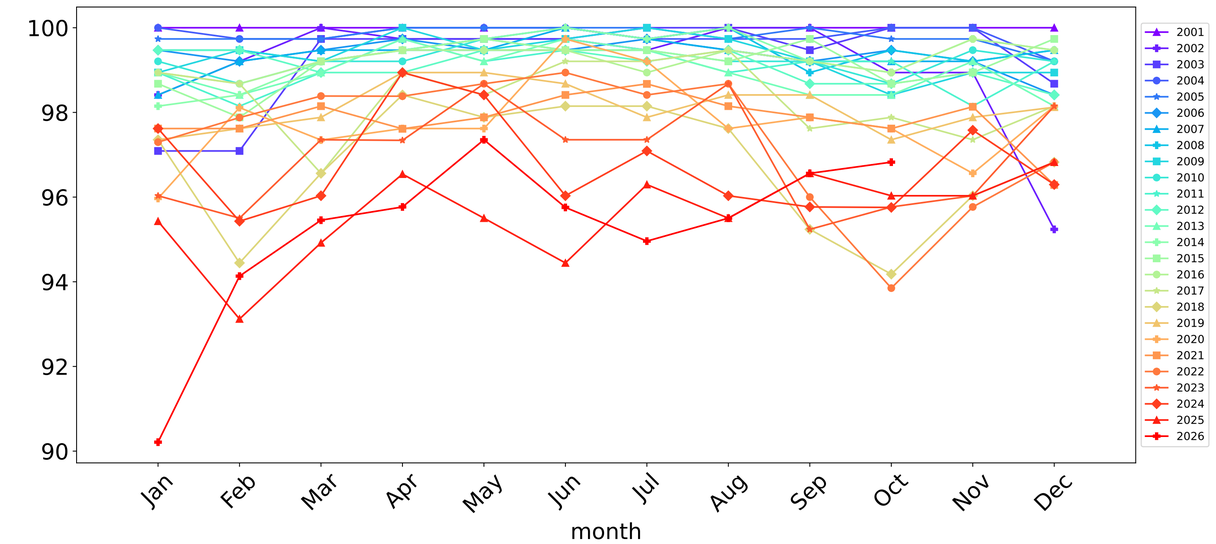
Wind erosion historical monthly area protected (Total Veg Cov >50%)

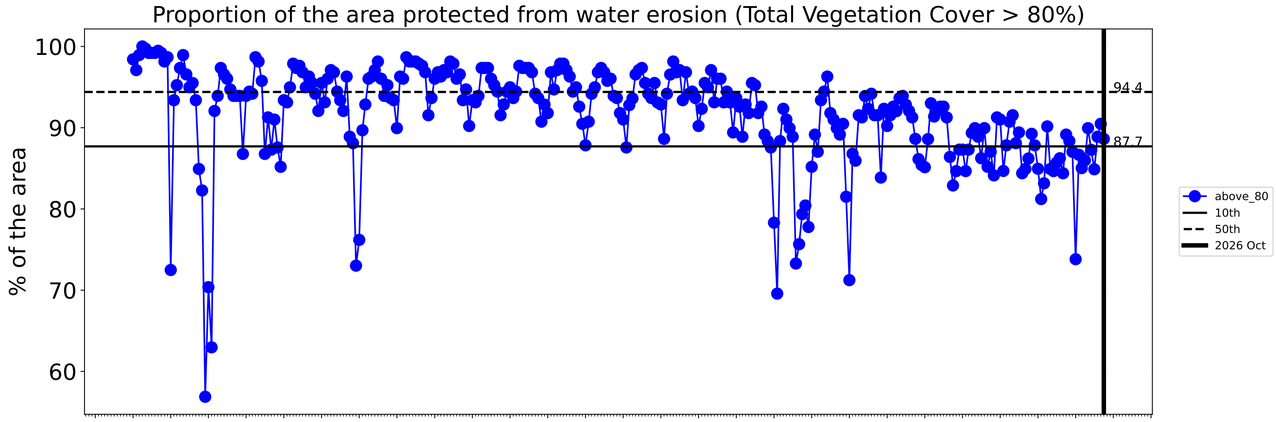


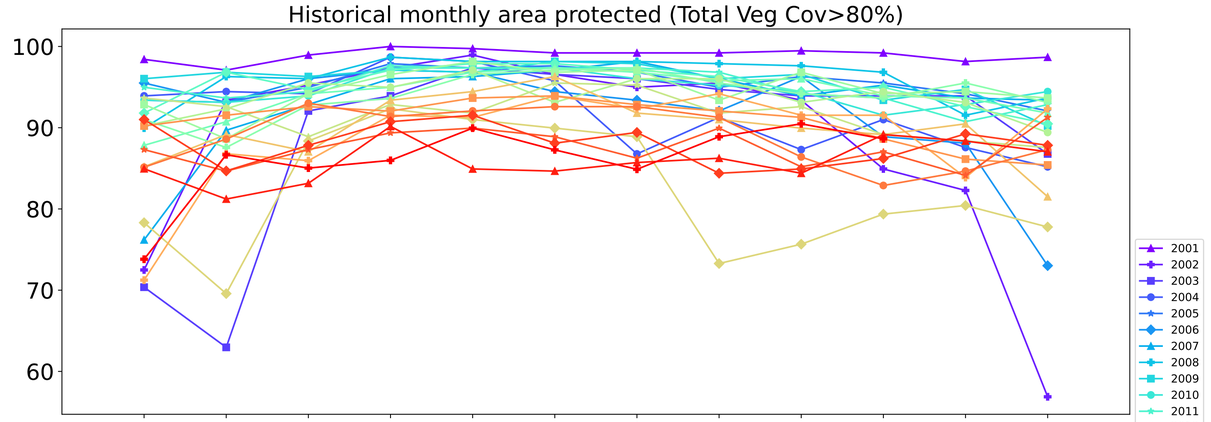
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

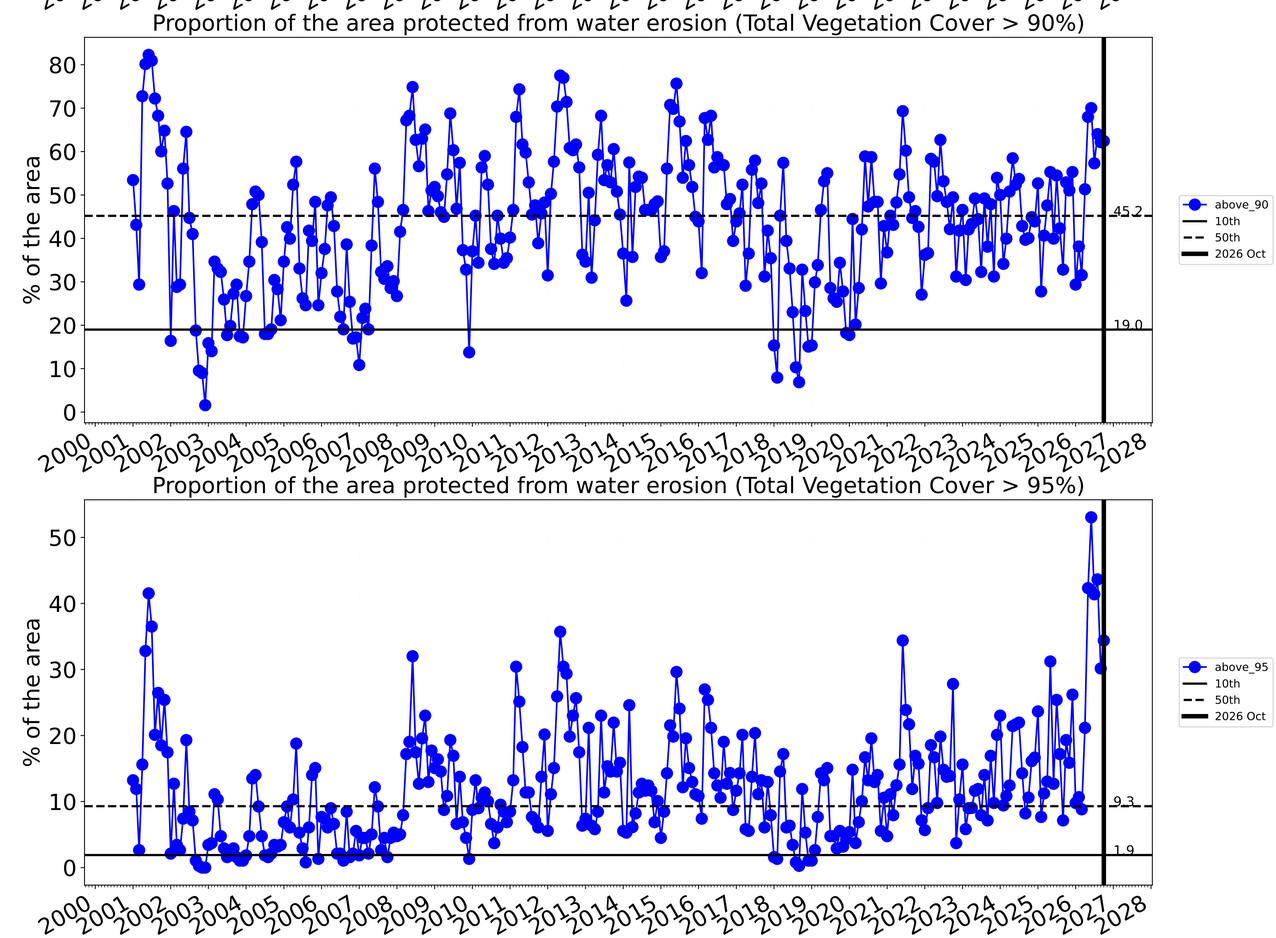


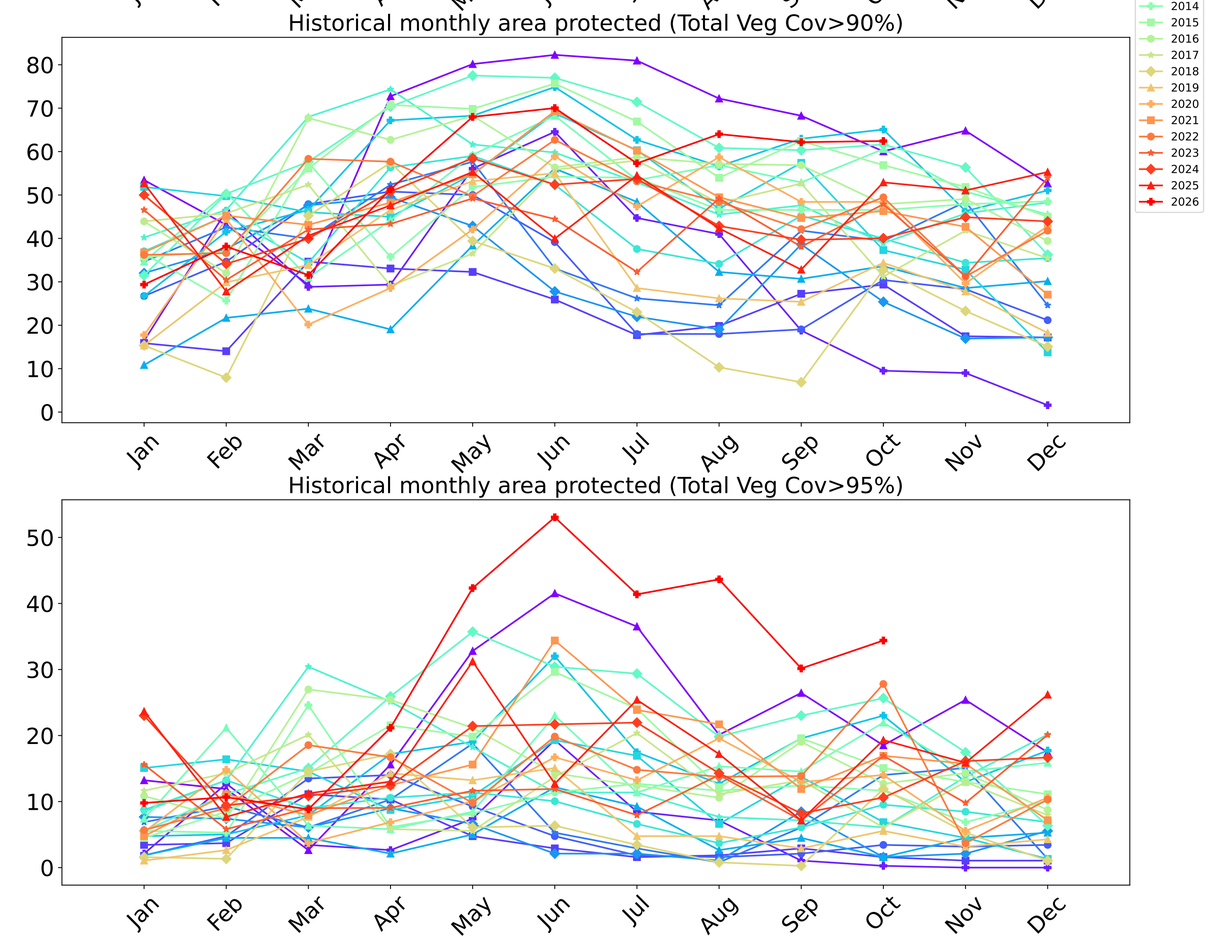
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
94.4
87.7
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
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2026

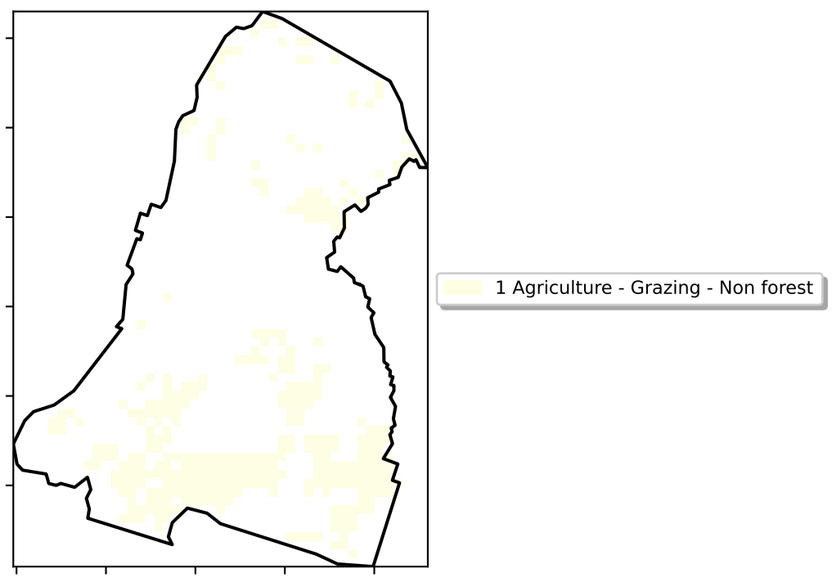

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
45.2
19.0
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
9.3
1.9
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
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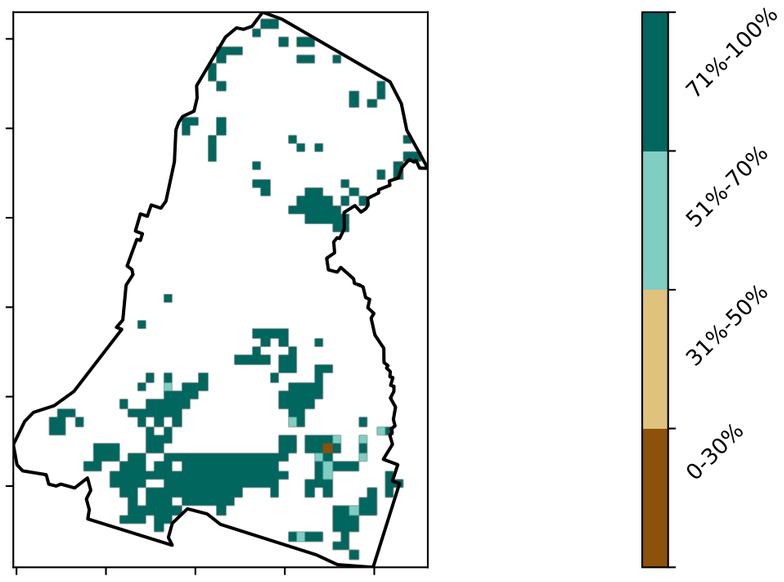
Grazing non forest

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

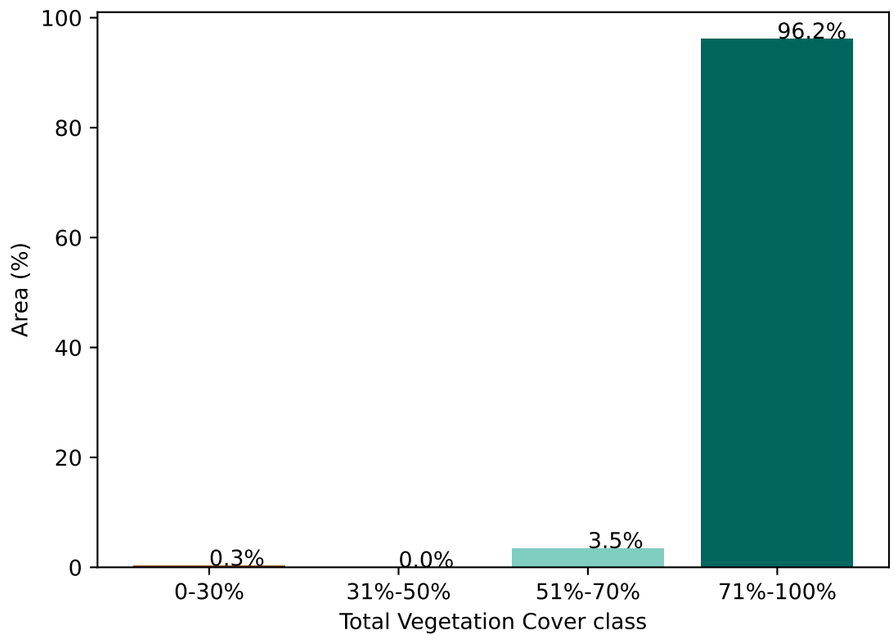
Land use and forest cover



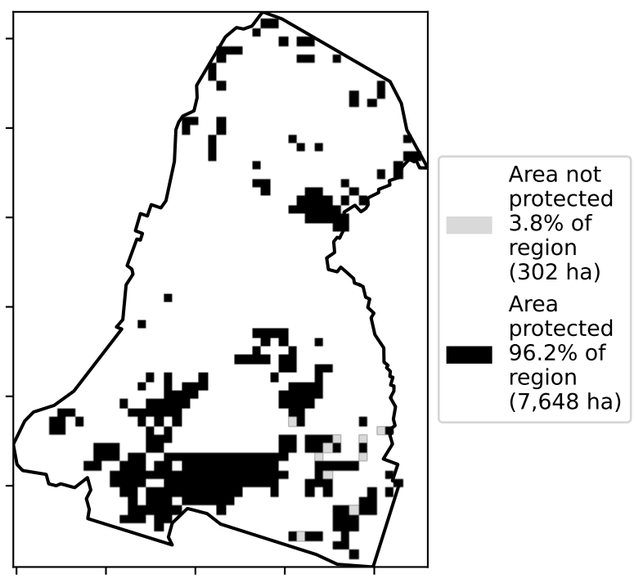
Total Vegetation Cover [%]



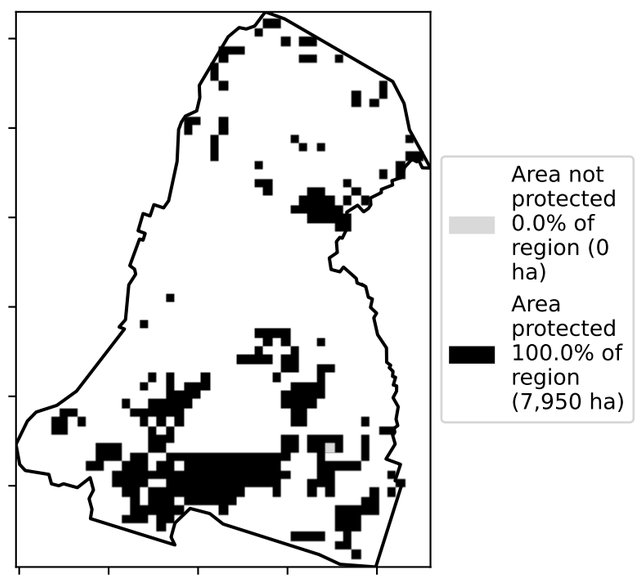
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

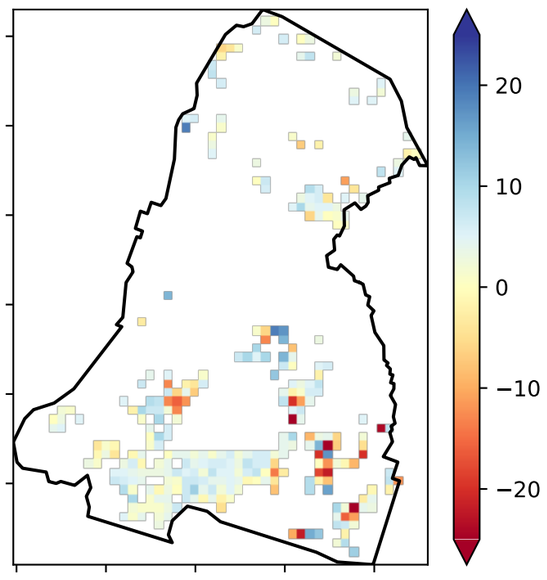


% Area protected from wind erosion (>50%)



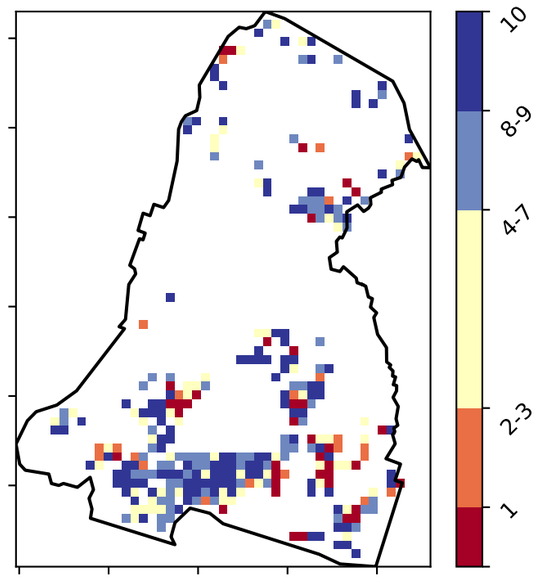
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



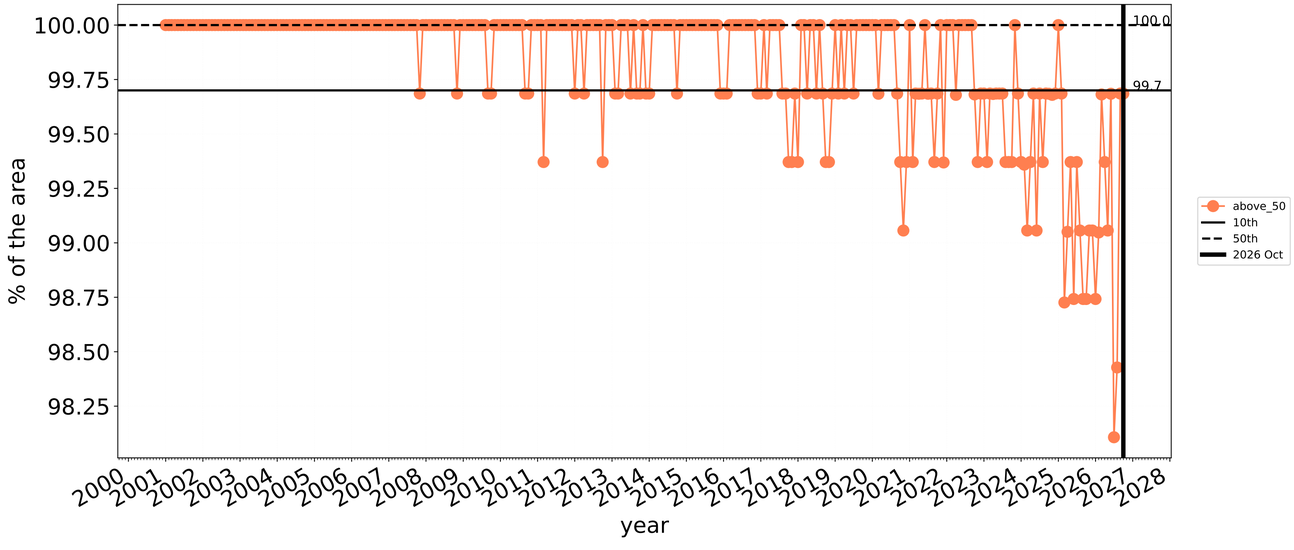
Total Vegetation Cover Decile [%]

Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

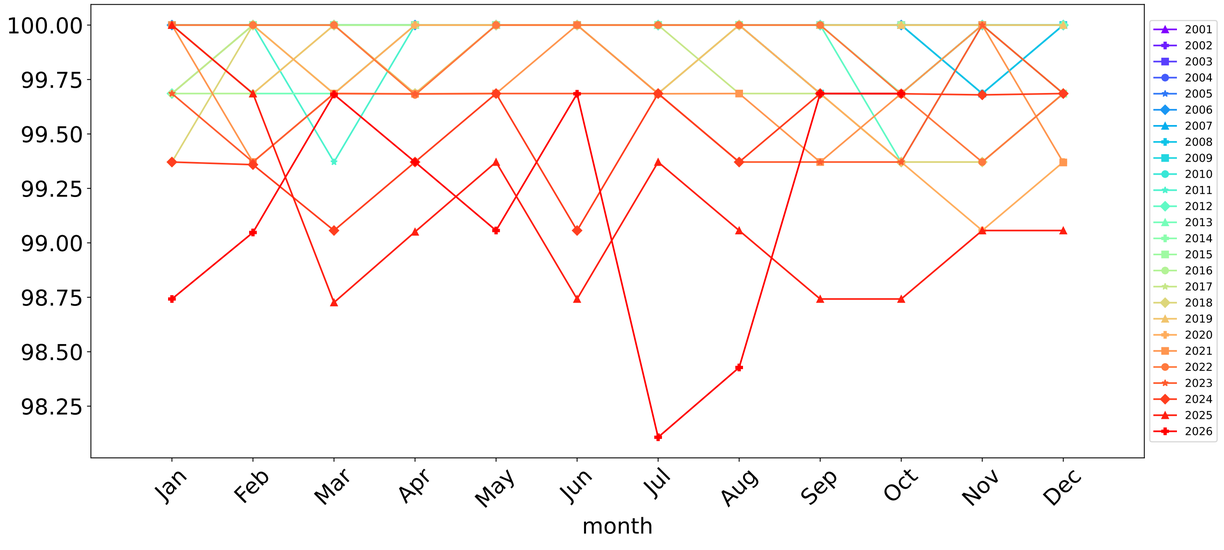


Grazing non forest timeseries

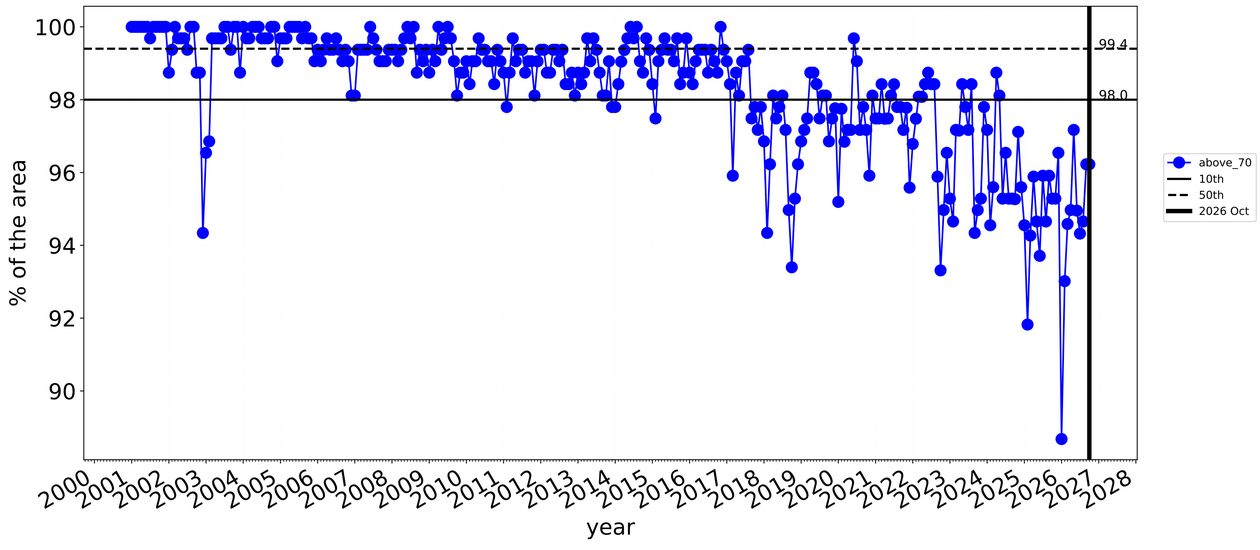
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



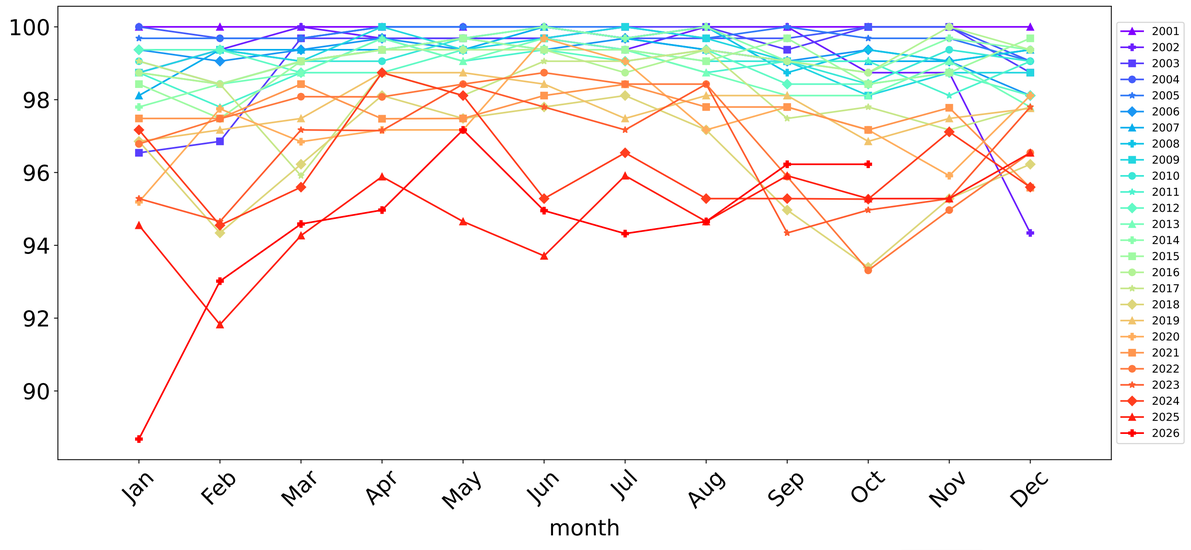
Wind erosion historical monthly area protected (Total Veg Cov >50%)

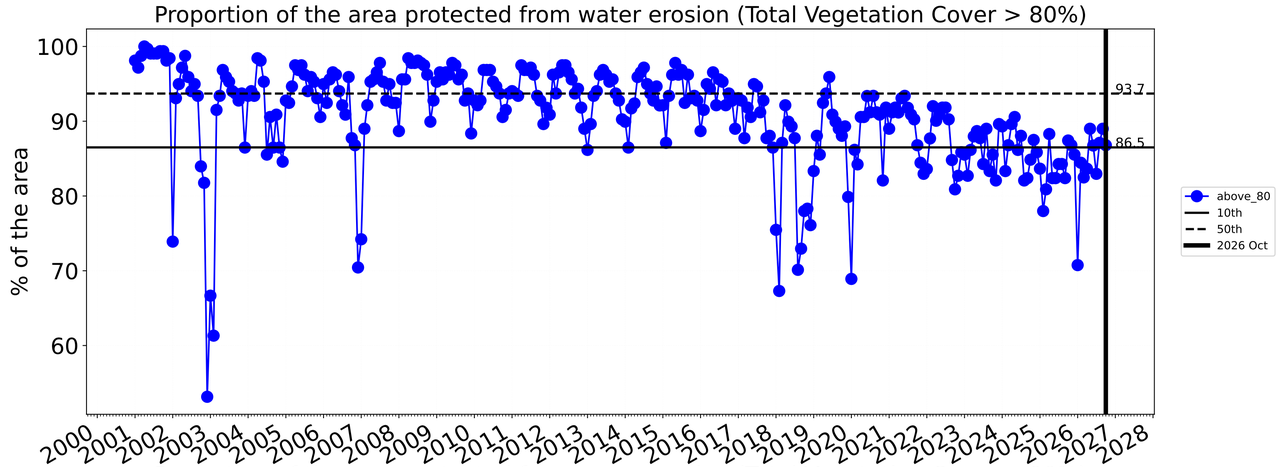


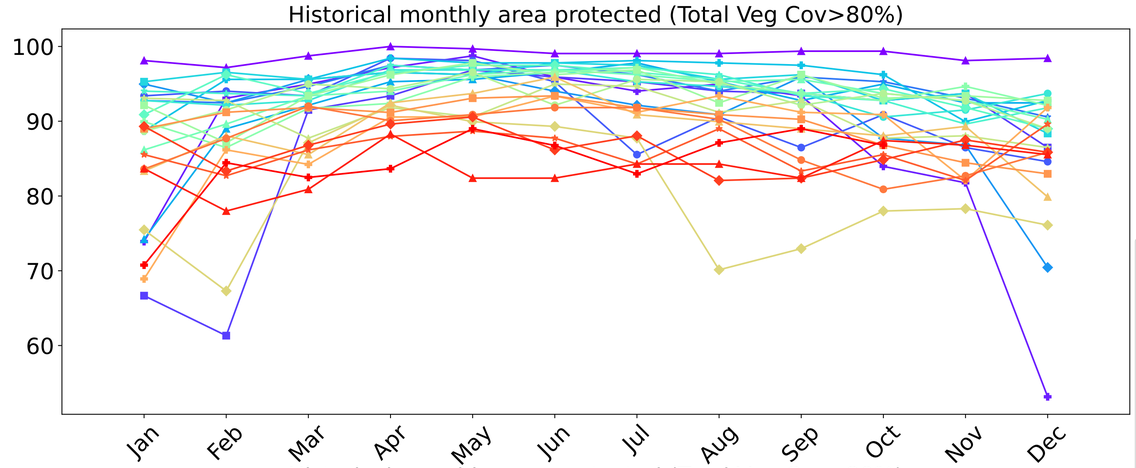
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

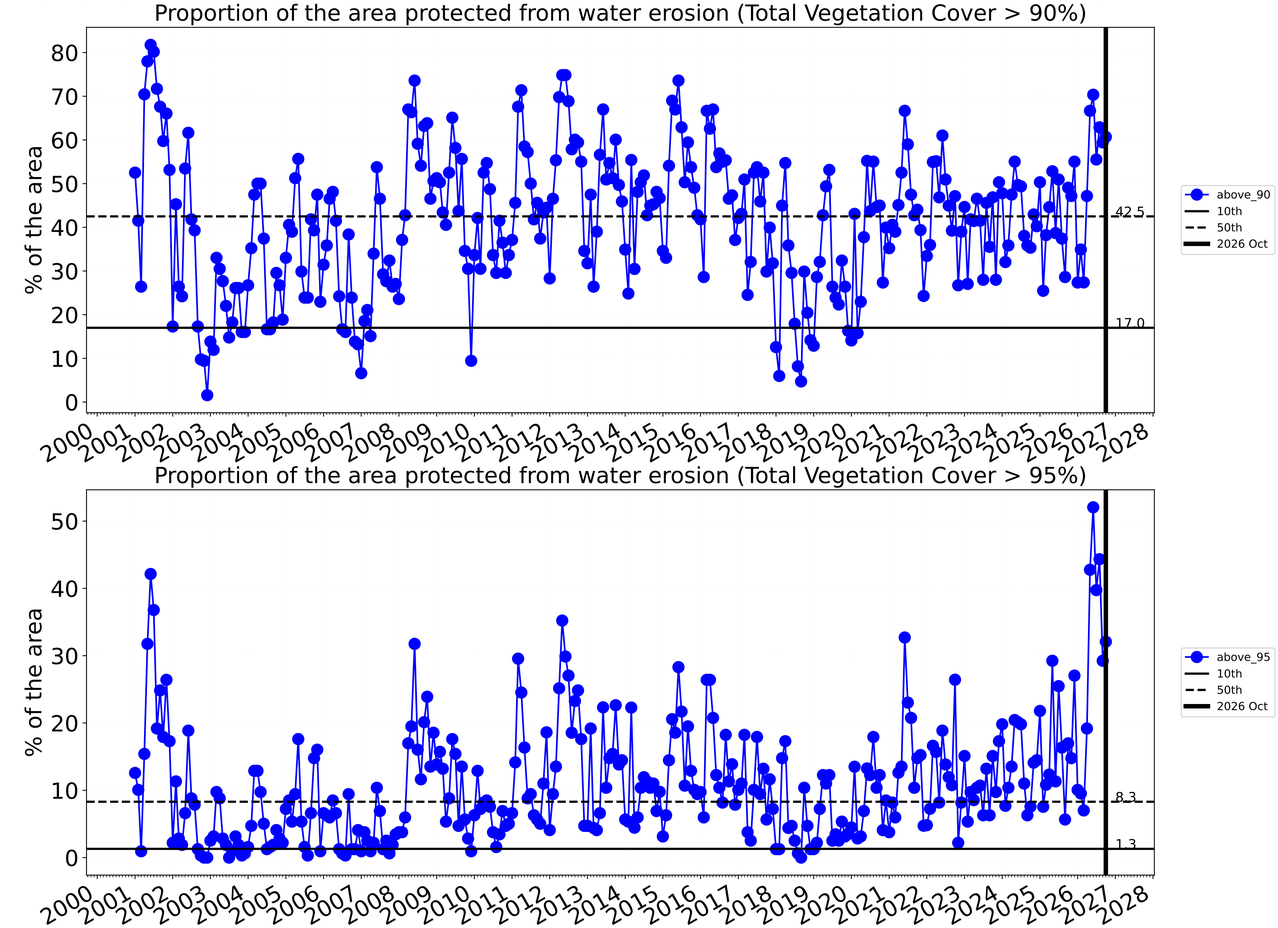


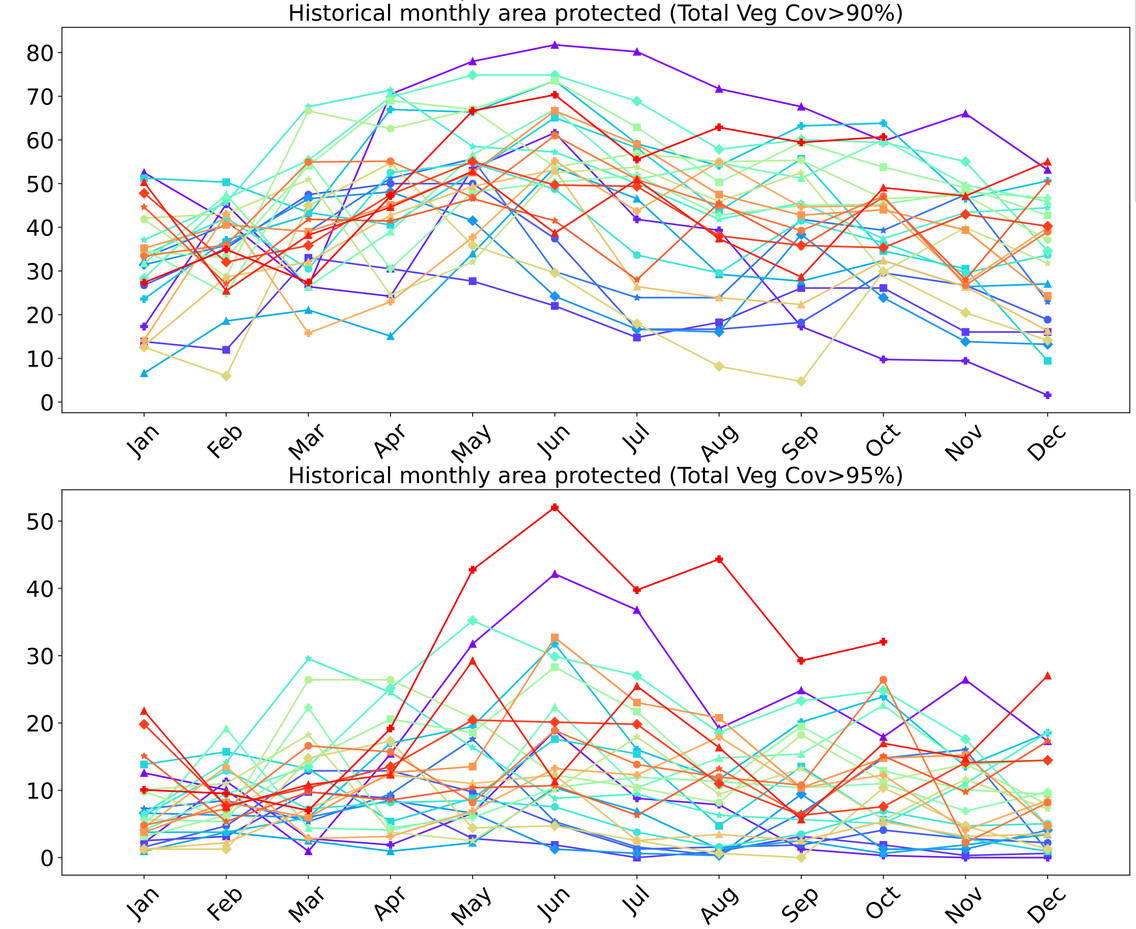
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
93.7
86.5
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

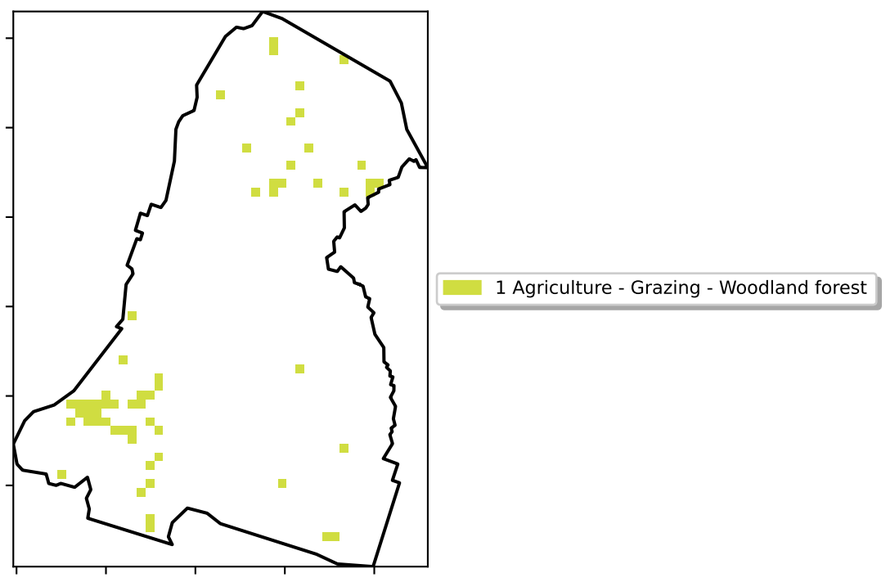

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
42.5
17.0
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
8.3
1.3
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

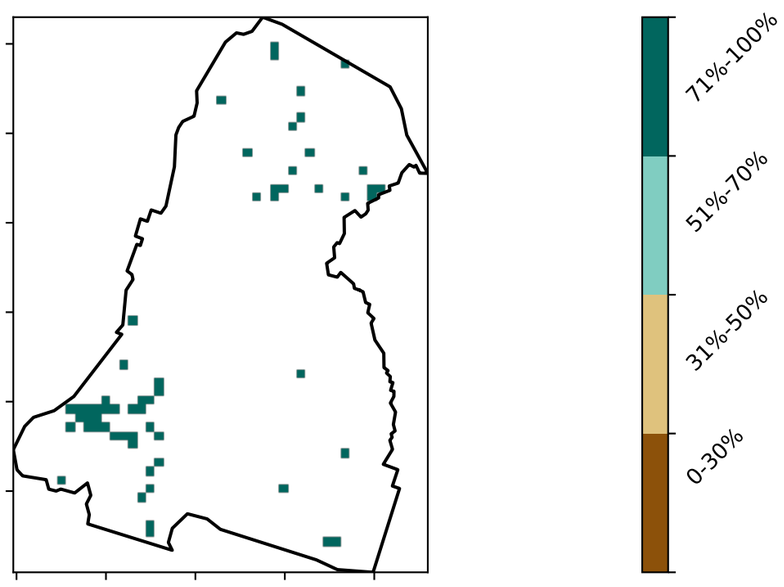
Grazing Woodland forest

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

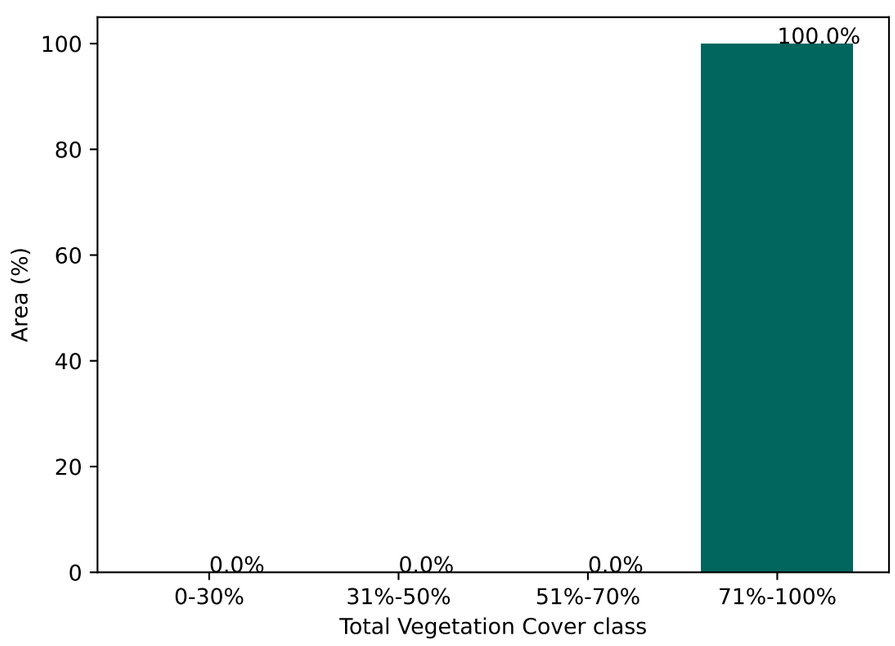
Land use and forest cover



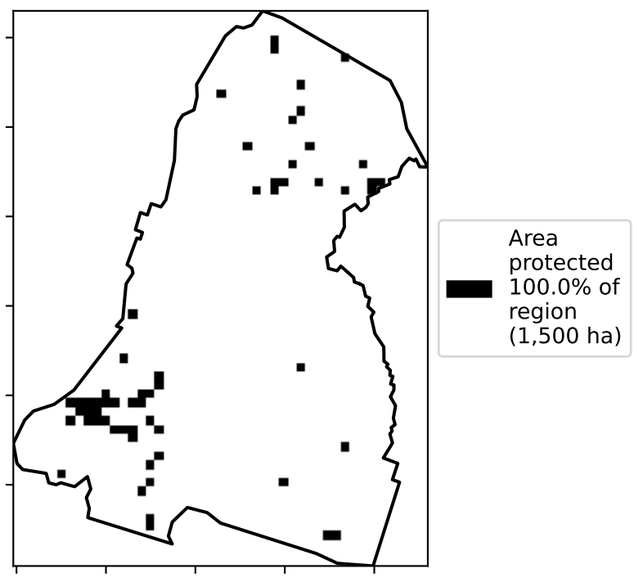
Total Vegetation Cover [%]



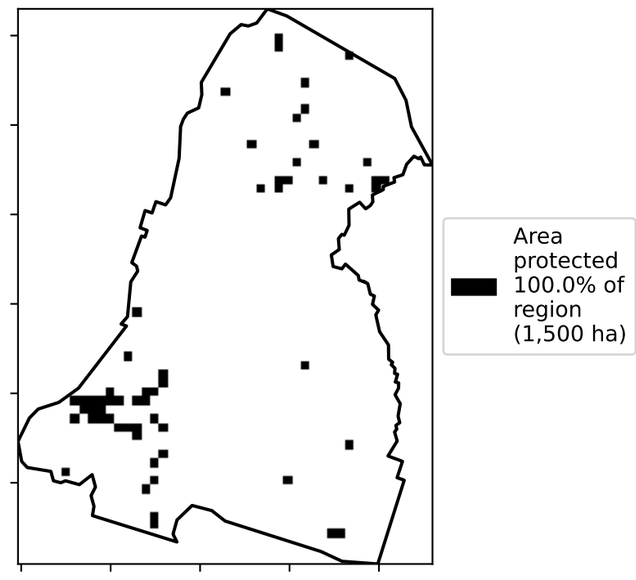
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

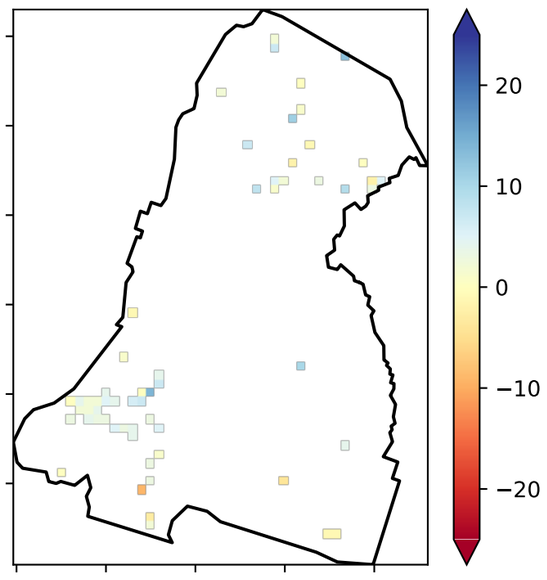


% Area protected from wind erosion (>50%)



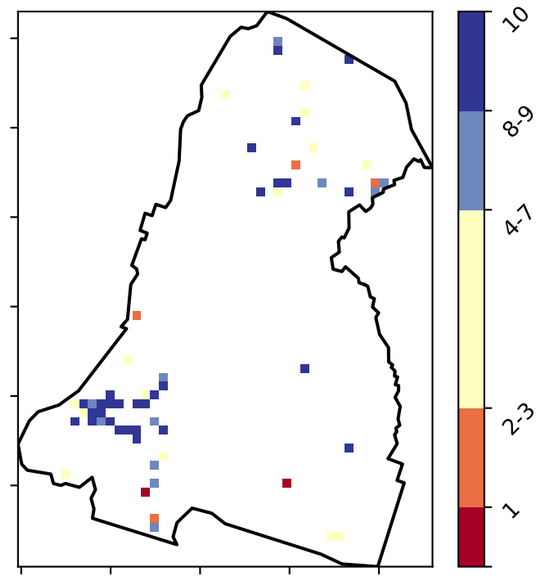
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



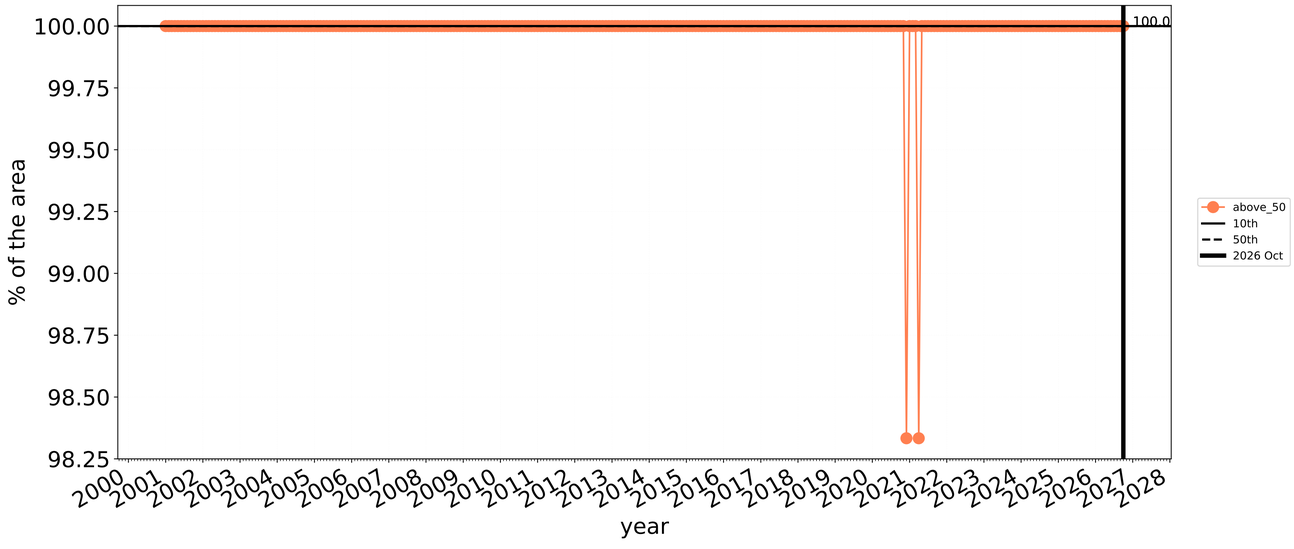
Total Vegetation Cover Decile [%]

Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

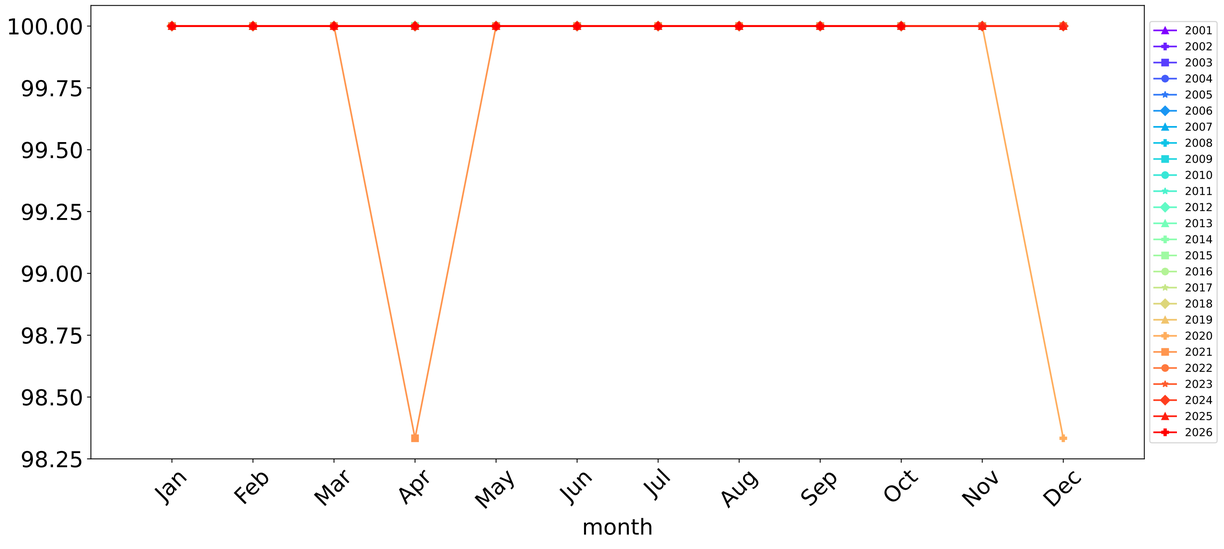


Grazing Woodland forest timeseries

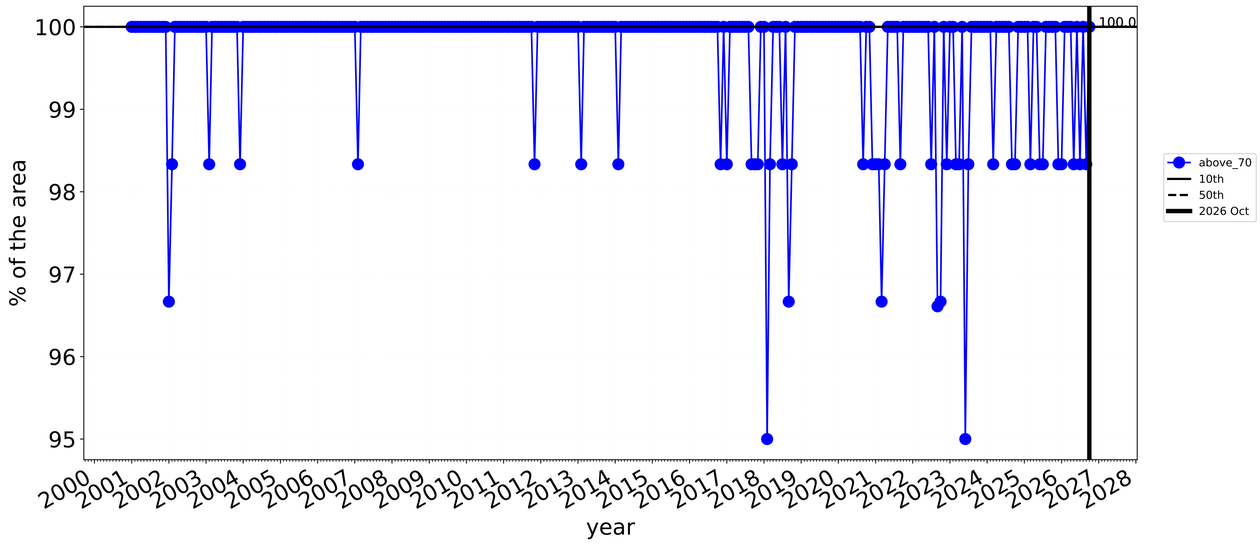
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



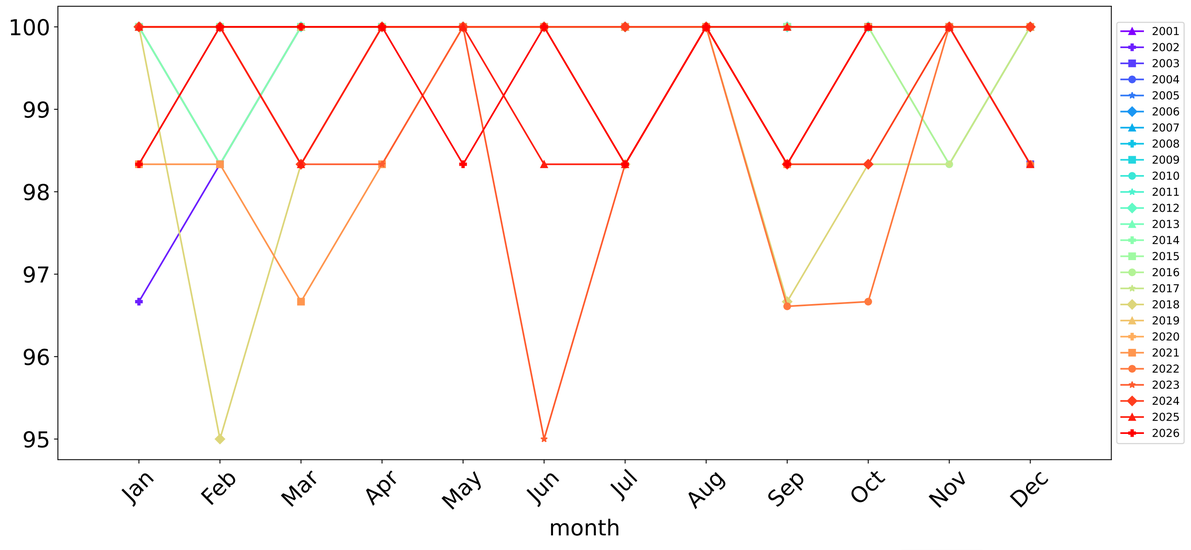
Wind erosion historical monthly area protected (Total Veg Cov >50%)

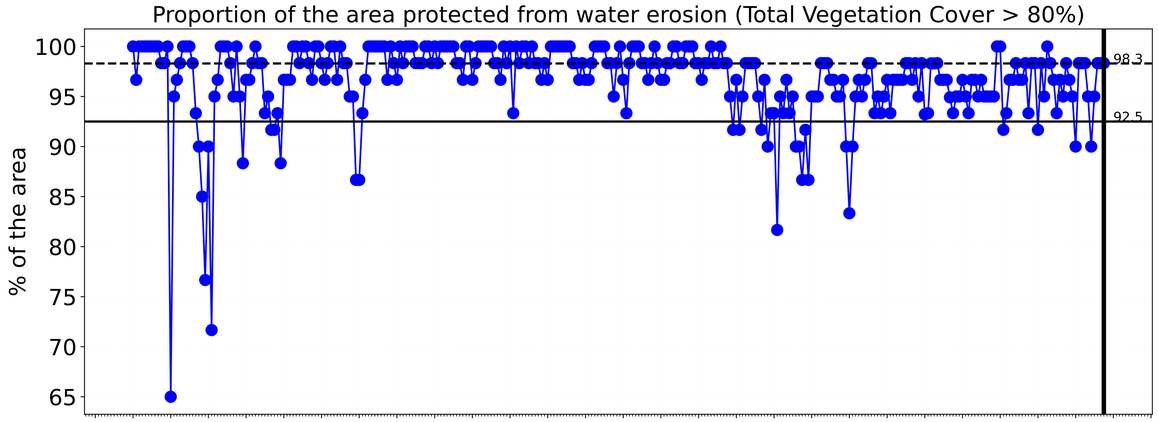


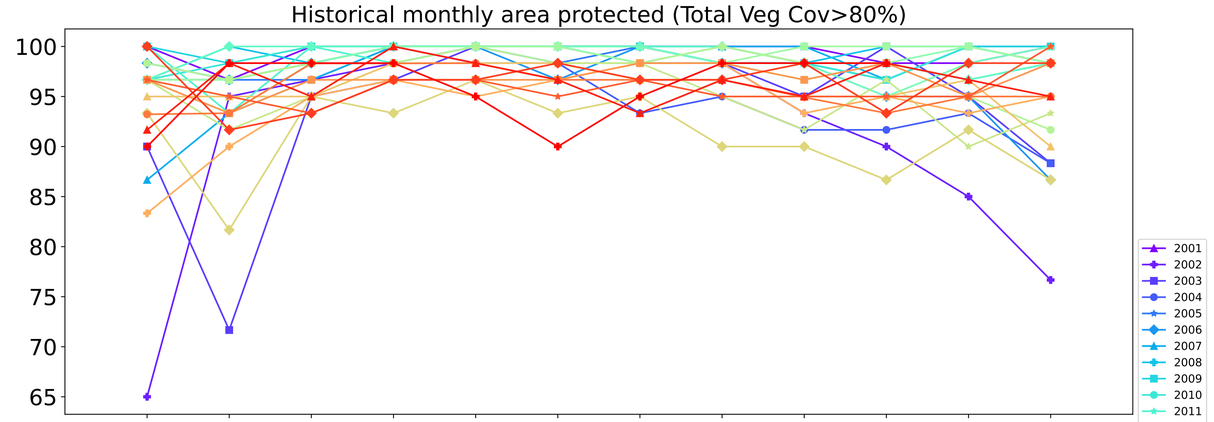
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

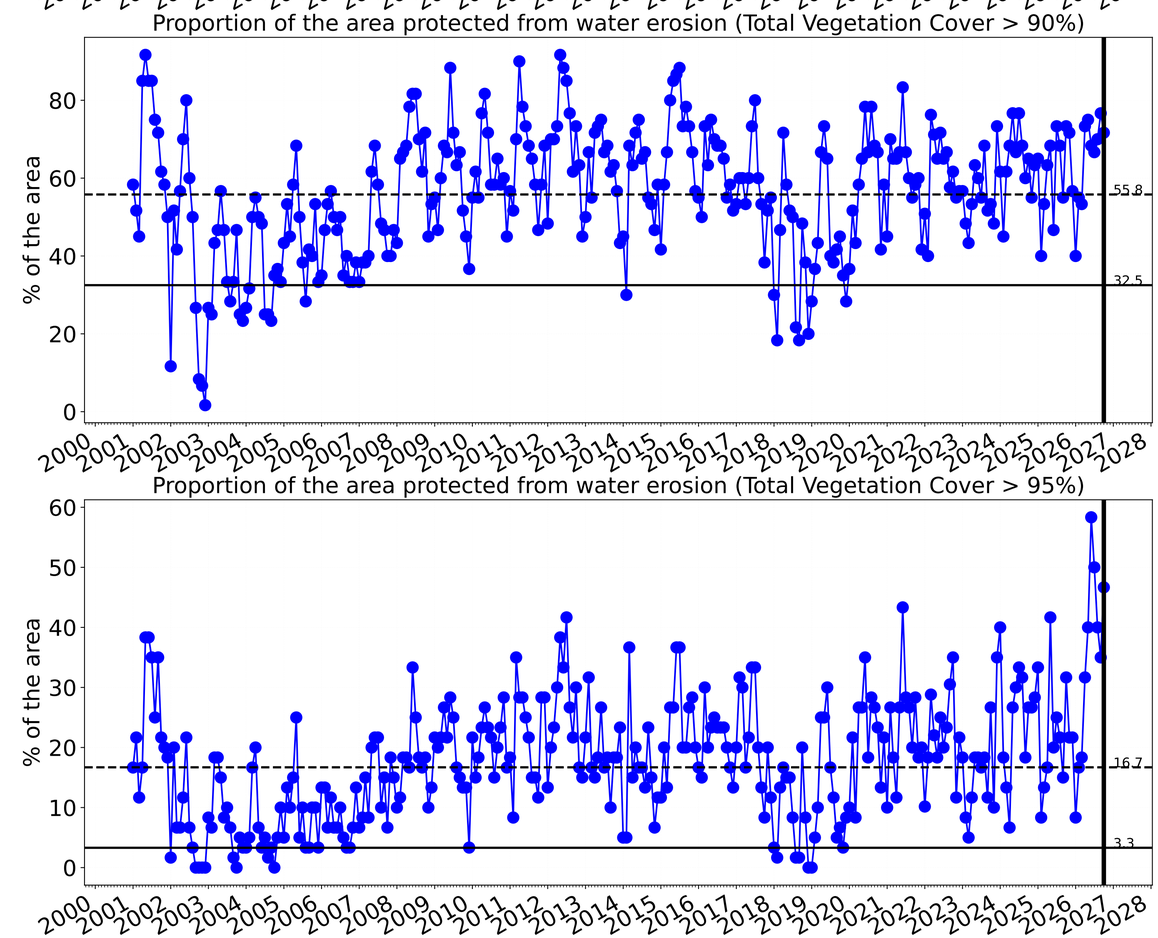


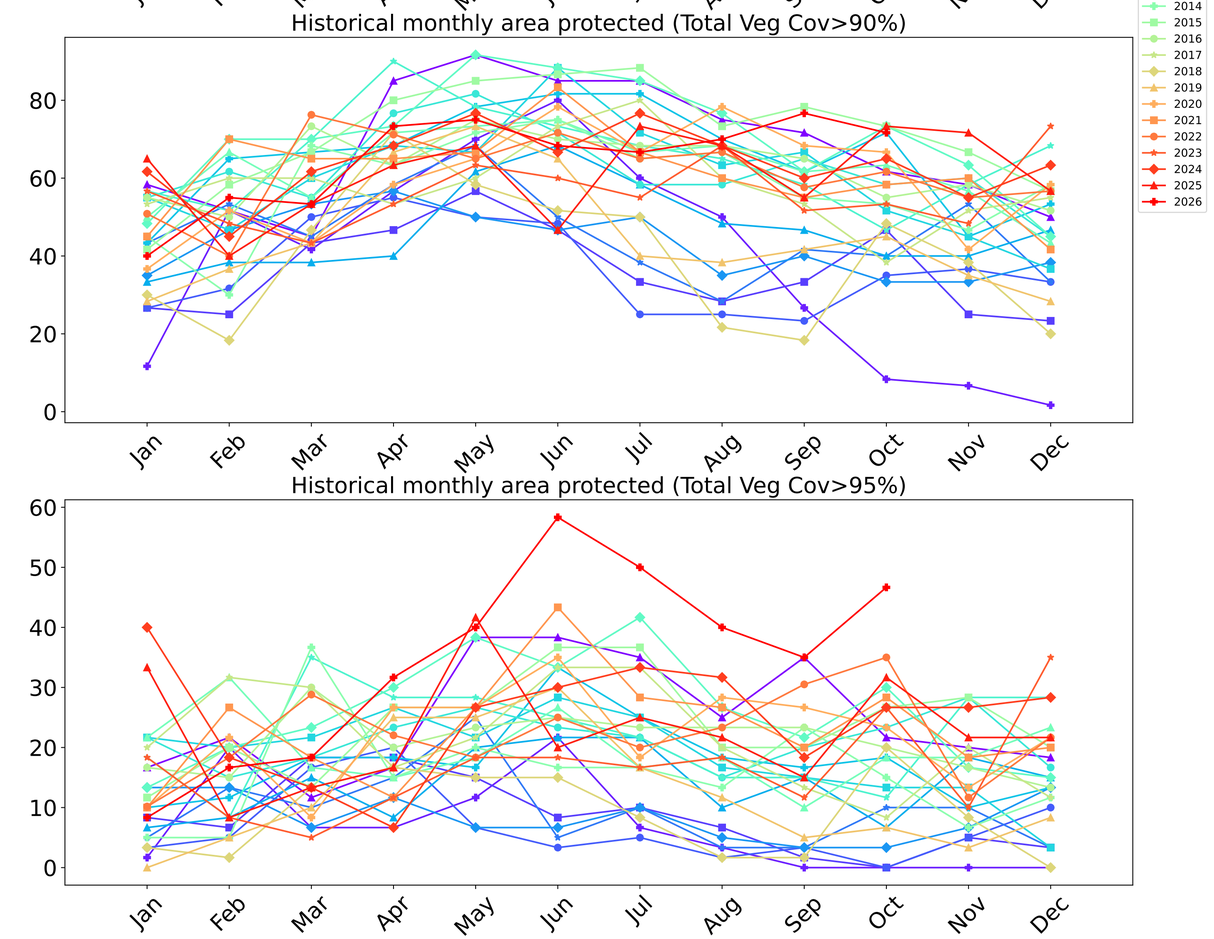
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.3
92.5
above_80
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
55.8
32.5
above_90
10th
50th
2026 Oct
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
16.7
3.3
above_95
10th
50th
2026 Oct


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Penrith_(C) (39,600 ha and no data 875 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	39,600	99.7% 39,500	99.0% 39,200	91.1% 36,075	77.0% 30,500	48.2% 19,075	22.4% 8,875
Conservation and natural environments	4,350	100.0% 4,350	100.0% 4,350	99.4% 4,325	99.4% 4,325	85.1% 3,700	40.8% 1,775
Conservation and natural environments Woodland forest	4,325	100.0% 4,325	100.0% 4,325	99.4% 4,300	99.4% 4,300	85.0% 3,675	41.0% 1,775
Agriculture	9,675	99.7% 9,650	99.7% 9,650	96.9% 9,375	88.1% 8,525	61.5% 5,950	33.9% 3,275
Grazing	9,450	99.7% 9,425	99.7% 9,425	96.8% 9,150	88.6% 8,375	62.4% 5,900	34.4% 3,250
Grazing non forest	7,950	99.7% 7,925	99.7% 7,925	96.2% 7,650	86.8% 6,900	60.7% 4,825	32.1% 2,550
Grazing Woodland forest	1,500	100.0% 1,500	100.0% 1,500	100.0% 1,500	98.3% 1,475	71.7% 1,075	46.7% 700